ADVANCING A MORPHOGENETIC UNDERSTANDING OF ORGANISATIONAL BEHAVIOUR

An Investigation into the Psychological Mechanisms and Organisational Behavioural Tendencies of Autonomous Reflexivity

By

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The candidate confirms that the work submitted is his/her own and that appropriate credit has been given where reference has been made to the work of others.

Acknowledgement

“Emancipate yourselves from mental slavery
None but ourselves can free our mind…”

Bob Marley (1945 – 1981) RIP

To Thierry and Keisha

Nicky and Mark thank you for your patience and confidence showed in me. I cannot express enough in words how much your guidance has been valued. Granny, you have been my rock, you may never know how much your influence runs deep in this work. I thank Professor Ann Cunliffe for her comments on an earlier draft and Dr Andy Brown for lending a listening ear. Without her confidence and understanding this work would not have been possible, a special mention goes to Professor Margaret Archer for her informal guidance, you are an inspiration to many. A special mention also goes to Maha, a friend I have shared many a thought with, you have the ability to inspire even without trying. All of this would have been but a fleeting illusion without Richard, thank you.

Finis coronat opus

The Abstract

It has been argued that the inertial forces of traditional societies are being gradually eroded under the weight of the destabilising forces imbued in nascent globalisation. For the new cosmopolitans of late modernity, this means that forging a sense of self is therefore becoming increasingly a reflexive project. This thesis celebrates reflexivity as an emergent human power. Three dominant modes of human reflexivity have been identified; communicative, autonomous, meta. Fractured reflexivity on the other hand is considered as non-reflexive. Moreover, the contextual discontinuity favoured by late modern societies appears to be selective, conditioning structural circumstances in favour of autonomous reflexivity in mainstream organisations.

In the first instance, the findings of this thesis expose the fragility of the internal reliability of the measurement models of the modes of Archer's internal conversation index (ICONI). Secondly, drawing on the resources of critical realism, this thesis' further contribution to knowledge is in revealing the positive psychological resources associated with an autonomous reflexivity intervention. By adopting an evidence-based realist review followed in sequence by a large scale survey and structural equation modelling, the findings suggest that autonomous reflexivity potentially holds the key to unlocking the resources that underlie positive psychological capital (PsyCap). In turn, PsyCap seems to operate in the intervening space between internal conversation and action accounting for the positive sense of self associated with autonomous reflexivity.

However, autonomous reflexivity does not mean unrestricted *homo economicus*, rather it means the search for congruence between a particular *modus vivendi* and a meaningful work context. Thus, this thesis also shows that autonomous reflexivity and the experience of contextual discontinuity at work share in a reciprocal relationship. Such congruency translates into positive organisational outcomes at the individual level albeit with the tendency to be mediated by positive PsyCap.

List of Abbreviations of Key Terms

AR	Autonomous Reflexivity
MR	Meta Reflexivity
FR	Fractured Reflexivity
CR	Communicative Reflexivity
COCD	Climate of Organisational Contextual Discontinuity
ICONI	Internal Conversation Indicator
OFLEX	Organisational Flexibility and Innovation
ORES	Organisational Resources
OREF	Organisational Reflexivity
OAUT	Organisational Autonomy
RESI	Resilience
SCONFI	Self-confidence/efficacy
OPTI	Optimism
HOP	Hope
PsyCap	Psychological Capital
TPERF	Task Performance
JOSAT	Job Satisfaction
INOV	Innovative Behaviour
FOC	Fear of Change
EDU	Education level
T_POST	Tenure in post
T_ORG	Tenure in organisation
CMO	Context, Mechanisms, and Outcomes

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Chapter One: Introduction

1.1 Introduction

This work interrogates the psychometric properties of Archer's (2007a) autonomous reflexivity paving the way for an examination of its utility for management and organisational studies. The nature of agency is probably one of the most contestable debates in sociology. One of the most common tendencies in discussions of agency is the treatment of it as a synonym for free will (Ahearn, 2001). Free will is premised on the idea of voluntarism in which individuals are viewed as "autonomous beings of rational choice theory" (Vogler, 2016: 65). Proponents of voluntarism thus deny that structures exist (Baber, 1991), as Ahearn (2001: 114) opines, they "only give lip service to the social nature of agency and the pervasive influence of culture on human intentions, beliefs, and action."

In opposition to voluntarism stands structuralism which gives explanatory primacy to structure. In essence, structuralism denies intentionality and reflexivity to human beings who become the passive bearers of cultural codes rather than actors (Patterson, 1989), therefore, no room is left for anything that might be regarded as agency (Ahearn, 2001). Notwithstanding competing epistemologies, contemporary literature looks for greater clarity of agency in reflexivity. However, reflexivity like agency, is plagued by much the same epistemological impasse. This thesis subscribes to a non-reductionist understanding of agency. Amidst the disruptive nature of the structural forces imbued in globalisation, this means a situated understanding of human reflexivity which recognises and celebrates the causal powers of social structures as well as that of the individual.

This generative dance (Cook & Brown, 1999) between structure and agency is best illuminated in the most recent works of social theorist Margaret Archer. Much like her contemporaries of the extended reflexivity thesis (Adams, 2006), Archer (2003, 2007a) shares in the belief that reflexivity increasingly constitutes self-identity in late modern societies. This is premised on the "erosion of traditionalism" (Kahane, 1996: 717) resulting from, but not limited to, technological advances, such as the Internet, in the making of modern societies. Indeed, according to Adams (2003), people are increasingly turning to their own resources to decide what they value, to organise their priorities and to make sense of their lives (Heelas et al., 1996).

In other words, the rise in contextual discontinuity at the societal level has served to challenge the orthodoxy of habitual action prevalent in pre-modern societies. As Giddens puts it, "the self today is for everyone a reflexive project" (Giddens, 1992: 30). In Archer's terminology, this effectively means that "reflexive deliberation is increasingly inescapable in order to endorse a course of action held likely to accomplish it; self-interrogation, self-monitoring, and self-revision are now necessary given that everyone unavoidably becomes her own guide" (Archer, 2010: 15). Thus, Archer believes that reflexive deliberation is causally efficacious in the sense that it equips individuals with some measure of agency in regards to how they live their lives.

Archer's reflexive deliberation takes the form of internal conversation. Whilst in a Giddensian account reflexivity assumes a universal dimension, her research reveals reflexivity or the internal conversation to be a heterogeneous process variously influencing the projects and *modi vivendi* of individuals. She identifies three different modes of reflexivity and one non-reflexive mode, yet, "she admits that the four modes she now distinguishes may not fully capture the full range of possible ways people engage in their internal conversations" (Plumb, 2008: 302). However, whatever mode of reflexivity is primary, our courses of action remain potentially fallible (Bovill, 2012).

Communicative reflexives are those individuals whose internal conversations require completion and confirmation by others before resulting in courses of action. In turn, those individuals who sustain self-contained internal conversations leading directly to action are labelled autonomous reflexives. The third mode of reflexivity identified by Archer is referred to as meta-reflexivity. Meta-reflexives are those individuals who are critically reflexive about their own internal conversations and critical about effective actions in society. Fractured reflexives are non-reflexives, those are individuals whose internal conversations intensify their distress and disorientation rather than leading to purposeful courses of action. According to Archer, the predominant mode of internal conversation adopted has enduring influence on the life pursuits of its practitioners. Archer's work on internal conversation has provided a renewed impetus in the study of human agency and has inspired a fresh wave of scholarly debate on the subject.

1.2 Research Gap and Research Question

Archer's theoretical perspective on reflexivity, although insightful, is not without its critics, and some are more vocal than others. Some of the more notable weaknesses in her theorising, as highlighted by other scholars, are summarised here, these include: the weak

role ascribed to social origins and to socialisation; the non-acknowledgement of the internalisation of exteriority processes and of other social mechanisms mediating structure and agency; and the strong emphasis on contextual discontinuity and incongruence in the analysis of social change (Caetano, 2015). Perhaps of critical importance is the reliability of her internal conversation index (ICONI) upon which she relies to assign her research participants to a particular dominant mode of reflexivity. To date, this index has not been independently validated and some authors (e.g., Dyke et al., 2012) have cast doubts on its internal reliability. Notwithstanding, the criticism of her work is also met by an unprecedented acknowledgement of her contribution to the advancement of knowledge in the field of social theory.

Her work on internal conversation and reflexivity are particularly highly regarded. Writing about the four modes of reflexivity, Donati (2011) notes that Archer's research is of extreme importance. Along a similar line Caetano (2015: 1) reasons that "Margaret Archer plays a leading role in the sociological analysis of the relation between structure and agency, and particularly in the study of reflexivity." For Wiley (2005: 3), "Archer has put together a brilliant theory of the internal conversation, leapfrogging everyone else on the topic," whereas Hewitt (2004: 732) opines that, "in undertaking the empirical study of reflexivity, and linking it to the problem of agency and structure, Professor Archer has embarked on an exciting project that holds considerable promise for deepening our understanding of how people act." Therefore, to borrow from Mutch (2004), the view that her discussion of the internal conversation and modes of reflexivity is rich and fascinating is hard to dismiss. Even one of her staunchest of critiques in François Dépelteau has difficulty denying:

> I presented her ideas about the four modes of reflexivity to my second-year sociology students. Overall, the reaction was positive. Clearly, many 'young people' recognize their life in these explanations (Dépelteau, 2013: 817).

In terms of academic scholarship, her work seems to be gaining traction in the last few years and in a variety of established bodies of knowledge, notable of these include the field of information systems (IS). For instance, Mutch (2010b) draws on the morphogenetic approach to emphasise how technology, as an emergent structure, may provide the objective context for future organisational wide action. Beyond IS studies, Dyke et al.'s (2012) work, with a focus on social network research, furnishes evidence supporting Archer's notion of reflexivity as a valuable lens to understand how people navigate their education and career pathways. Locating their study broadly within the

institutional entrepreneurship scholarship, Delbridge and Edwards (2013) draw on the idea of analytical dualism in their attempt to address the paradox of embedded agency. Contextualised in the super yacht construction niche, the result of their case study illuminates how the conditioning forces at play shape the agency and personal processes of reflexivity available to the yacht designers within their relevant historical and organisational context. Their overall conclusion is thus:

> Social structures have a transfactual potential to exercise influence on (but not determine) action. They thus operate as 'generative mechanisms' to shape, constrain and enable action. Outcomes are subject to empirical evaluation and provisional causal explanation (Delbridge & Edwards, 2013: 19).

These brief illustrations suggest that Archer's work represents an academic melting pot of intellectual possibilities and much of which remains untapped. However, from the prism of this thesis, it is maintained that notwithstanding her particularly eloquent and convincing narrative of the human nature, Archer neglects the role psychological resources play in human development and wellbeing. Defined more broadly, agency concerns the capability of an individual to act, in her approach to reflexivity, Archer assigns the individual element of this capability almost exclusively to the power of internal conversation. In previous research, scholars have discussed the important anterior role of psychological resources in human agency (e.g., Bandura, 1989; Kleine, 2010). The lack of consideration to the psychological foundations of internal conversation is remarkable on the part of Archer not least owing to the well-developed nature of this body of work which can be harnessed in celebration of a more rounded view of human functioning. Against this observation, this research also echoes with Alan Cicourel who asked, towards the end of his review of Archer's 'Making Our Way through the World,'

> What cognitive, emotional, and sociocultural skills and practices are necessary to motivate the young to follow and/or avoid adult guidance, constraints, and conflict when pursuing educational and practical skills that can lead to occupational achievements and failures (Cicourel, 2010: 1901)?

Moreover, Caetano's (2014: 12) assertion that, "in order to study personal reflexivity sociologically one needs to understand how reflexive competences are formed, how they are exercised, what effects they can have on people's lives and what their specific dynamics of action are" is also pertinent. Perhaps a more salient and if not all-encompassing concern about Archer's work is reflected in Mutch's (2010a) suggestion that there is a need for research into reflexivity that focuses on the boundary between

psychology and sociology. Furthermore, the relevance of Archer's work to the more general management and organisational studies has been questioned. For instance, de Vaujany (2008) observes that compared to Giddens' structuration theory, Archer's internal conversation theory remains extremely theoretical with little application to concrete organisational setting and practices. A further limitation of Archer's work on internal conversation, as highlighted above, concerns the internal reliability of the internal conversation index (ICONI), with some suggesting that some of the statements do not reflect what they supposed to measure (e.g., Dyke et al., 2012).

Hence, this work is an attempt at addressing some of the gaps and omissions in Archer's work on internal conversation. In the first instance, this work aims at exploring the internal reliability of the ICONI. Secondly, this research also aims at examining the utility of the notion of internal conversation to management and organisational studies. Of particular interest in this context are Archer's autonomous reflexives. Archer advocates social restructuring processes that appear to be moving towards structural weakening (Caetano, 2015). This suggests that the rapid pace of change caused by global competition and work distribution for instance, creates a contextual discontinuity (Gillberg & Bergman, 2015). The rise of contextual discontinuity is inseparable from the growth of autonomous and meta-reflexivity (Caetano, 2015).

While meta-reflexivity pay critical attention to social ideals; prioritising the pursuit of these in the face of contextual discontinuity, autonomous reflexivity typically signifies the prioritisation of performance in relation to practice and as such, is particularly preoccupied with employment-related concerns (Kahn, 2009). Given their preoccupation with work, many scholars have commented on the highly productive nature of the autonomous reflexives (e.g., Nyika et al., 2016; Sanghera, 2009). Thus, it is not surprising that Archer (2014b) believes that autonomous reflexivity, more than any of the other modes, contributes to economic development. It is with this perceived criticality of autonomous reflexivity to the economy in mind, that it is being looked upon as a good starting point to examine the utility of the notion of internal conversation to management and organisational studies. In broad terms, this study seeks to illuminate the individual level, organisational consequences associated with the practice of autonomous reflexivity. Thus, given the aforementioned, this thesis is tasked with pursuing answers for the following questions.

1. What is the nature of the underlying measurement model for the latent construct of each of the four modes of reflexivity?

2. What impact does the interaction between autonomous reflexivity and the organisational context have on individual level organisational behaviour and attitudes?

In order to address the main research questions, this work is built around the following interrelated aims:

a) To examine the psychometric properties of the latent construct of each of the four modes of reflexivity.

b) To examine the psychological/cognitive competences associated with autonomous reflexivity.

c) To investigate and report the characteristics of an organisational context compatible with the practice of autonomous reflexivity and the nature of the relationship between the two.

d) To explain the workplace behavioural and attitudinal outcomes likely to result from the practice of autonomous reflexivity.

1.3 Chapter Summary

The very essence of our humanity is disputed territory. Those interested with this agenda have debated sometimes passionately holding on to their own preferences and in the process most have reduced the human being to some form of deterministic entity or another. This reduction first took shape through the structuralism of socially determined subjects which later found an opponent in the psychologically predisposed agents of voluntarism. The deterministic forces of tradition are however on the wane, not least through the efforts of technological inventions that seem intent on challenging the orthodoxy of traditional practices. Given the dynamism imbued in the global forces of an evolving modernity, scholars have had to grapple, sometimes reluctantly, with new forms of being and acting in the world.

Most scholars agree that traditional conventions are no longer viable models for action and with few places left to look, some have turned to the self for sanctuary. However,

reflexive action carries its own set of problems and opinions in the academic world are still as divided as ever; thus the old dichotomy of structure and agency has found new currency in modernity. Archer has elaborated her theory of internal conversation aimed at illuminating this debate further, whilst many have welcomed her pioneering work as ground breaking, others have been more cautious if not pessimistic. Nevertheless, the significance and influence of Archer's work are hard to deny.

In this thesis, Archer's version of human functioning is being celebrated. The implication of such a choice is felt through what the critiques have reported as deficiencies in Archer's work, both methodological and theoretical. Thus, the research questions are designed with addressing some of these concerns in the hope of advancing the theory of internal conversation to a significantly different level of comprehension, and in so doing report its usefulness or otherwise to the study of management and organisations.

1.3.1 Structure of the Thesis

In Chapter 2, a realist review is offered as an evidenced based, theory driven synthesis of the literature. It thus plays a dual role of literature review and theory building. This chapter also provides the rationale for conceptualising climate of organisational contextual discontinuity (COCD) as a second order, four factor latent variable. A set of hypotheses results from this review. Chapters 3, 4 and 5 attend to the quantitative phase of this research. In Chapter 3 issues such as data screening and demographics associated with the quantitative study are discussed.

The measurement models are analysed in Chapter 4. Special attention is paid to validating Archer's internal conversation indicator (ICONI); an analysis of the literature could not confirm that this had been attempted before. In this chapter, the COCD measure is also put under statistical scrutiny. Hypothesised relationships resulting from the realist review in Chapter 2 are examined thereafter in Chapter 5. In Chapter 6 the findings are discussed whereas potential contributions to theory and practice are advanced in Chapter 7. An account of the strengths and weaknesses of the research design is provided in Chapter 8 along with recommendations for future research. This chapter brings the thesis to an end on a reflective note.

Chapter Two: Realist Literature Review

2.1 Introduction

The analysis and review of an existing body of literature may be approached from a variety of positions. While the majority of PhDs continue to be based on the traditional narrative approach (Jones & Gatrell, 2014), in recent years systematic reviews have become regarded as the most reliable form of research review (Cassell et al., 2006). Based on Kitchenham's (2004) assessment, systematic reviews aim to present a fair evaluation of a research topic by using a trustworthy, rigorous, and auditable methodology. In conjunction with systematic review, meta-analysis is frequently used to quantitatively combine the data from studies on the same topic in order to reach some general conclusions about the effect of X intervention on Y outcome (Cook et al., 1997). The primary motive behind this form of aggregative synthesis is to provide greater confidence in the results of statistical analysis (Cassell et al., 2006). Other, more common if not contemporary types of reviews include meta-ethnography, meta-narrative, and more recently, realist synthesis.

Meta-ethnography is useful for synthesising qualitative research and for developing models that interpret findings across multiple studies (Atkins et al., 2008). It involves selecting relevant empirical studies to be synthesised, reading them repeatedly, and noting down key concepts which become the raw data for synthesis (Campbell et al., 2003). Meta-narrative is similar to a realist approach in that meta-narratives include both qualitative and quantitative studies (Cassell et al., 2006). Campbell (2007: 1) calls a meta-narrative "a master explanation that helps to organise other insights and observations within a framework underpinned by a united set of confidently asserted, fundamental truth claims." It is distinctive in that it treats conflicting findings as higher order data, so that the main emphasis of the synthesis appears to be on examining and explaining contradictions in the literature (Barnett-Page & Thomas, 2009).

A realist synthesis usually involves the analysis of both qualitative and quantitative research data (Jones & Gatrell, 2014; Rycroft-Malone et al., 2012). Originally developed by Pawson (2002) to review complex evidence, advocated especially (though not exclusively) for policy questions, it has more recently been refined and presented as realist review (Pawson et al., 2004). According to Greenhalgh et al. (2004), a realist review illuminates the problem and raises areas to consider rather than provides definitive answers. It therefore rejects the hierarchical approach, of meta-analysis for instance,

because as indicated above, multiple methods are needed to illuminate the richer picture (Pawson et al., 2005). In particular, realist reviews seek to unpack the relationships between context, mechanism and outcomes (sometimes abbreviated as C-M-O) (Greenhalgh et al., 2011). What this means in practice is that a specific set of mechanisms will lead to certain outcomes when operating in a particular context (Jones & Gatrell, 2014; Wong et al., 2013).

Owing to its roots in critical realism, the realist review inevitably shares many features in common with the notion of analytical dualism, which also celebrates multiple generative mechanisms in the making of observable social events. However, in its current format, the realist review seems more useful as an evaluative framework for the effectiveness of a particular policy mechanism (Pawson, 2002). Thus, at first sight, it may appear ill conceived that such a review could be of value to this research. The next section defends the adoption of the realist review in this thesis by making a case for reflexivity as an intervention. In this thesis, reflexivity is linked to context and outcomes in Archer's 3-stage morphogenetic process. Therefore, the groundwork for justifying a realist review for this work is set by first linking the CMO framework with Archer's 3-stage process.

2.2 Justifying the Realist Review Approach

In mounting a defence for conceptualising reflexivity as an intervention, a useful starting point lies in the small but growing body of literature concerned with the role of team reflexivity in predicting team performance (Schippers et al., 2013). Team reflexivity theory (West, 2000; West & Anderson, 1996) is founded on the assumption that more often than not teams fail to reflect (Konradt et al., 2015). It is believed that team processes usually take on a habitual or routinized nature (Schippers et al., 2014) and as a consequence teams generally have difficulties developing task adaptive strategies (Gurtner et al., 2007). Guided reflection is recommended as a remedy. Essentially, guided reflection concerns interventions aimed at stimulating reflexivity in teams. Team reflexivity is defined by West (2000: 296) as, "the extent to which group members overtly reflect upon, and communicate about the group's objectives, strategies (e.g., decision making) and processes (e.g., communication), and adapt them to current or anticipated circumstances."

Team reflexivity theorists are of the view that inducing reflexivity may be a practical intervention to improve team performance (Schippers et al., 2013). Rightly so, research among surgical teams has shown that a reflexivity intervention helped teams question

taken-for-granted assumptions, such as the suitability of the room layout for an operation, resulting in more effective team performance (Schippers et al., 2015). An illuminating study making use of a reflexivity intervention protocol is offered by Gurtner et al. (2007). Although the study's main task was to examine the effect of guided reflection on team processes and performance, the experiment included three different conditions; a control condition, a group reflexivity condition, and an individual reflexivity condition. As part of their portfolio of hypotheses the authors predicted superior team performance in the group reflexivity condition compared to the individual reflexivity condition.

The intervention used was based on the three-stage process of reflexivity offered by West (2000). Teams were asked to reflect on their performance, to consider potential improvements, and to develop plans as to how the new strategies would be implemented (Konradt et al., 2015). In the group reflexivity condition, team members discussed the reflection tasks as a group. In the individual reflexivity condition, participants were asked to reflect individually. The experimental task for the study was a team base military air-surveillance task (TAST); the groups were required to observe planes moving in an air space and to determine the threat level of each plane. Performance for each team was measured by comparing the real threat level (as programmed), against the threat assignment of the team. Contrary to their expectations, the results for the group reflexivity condition were not superior to the individual reflexivity condition. Quite the opposite, they were inferior. Gurtner et al. (2007) study is particularly significant in the context of this thesis.

The team reflexivity intervention can be thought of in terms of communicative reflexivity where actors are called on to complete their 'thought and talk' pattern inter-subjectively. In this case, the reflexivity intervention forced team members to verbalise their thoughts about the team strategy. This probably led to an inter-subjective approach to meaning-making and thus resulted in a negotiated understanding about performance and potential for improvement. When team members were left to reflect on their own, it means that they had to complete their internal conversation alone, this can be paralleled to autonomous reflexivity. For Gurtner et al. (2007), reflexivity is a homogeneous process, at least they did not indicate otherwise, they do not distinguish between modes and therefore their apparent struggle to find a meaningful explanation for the unexpected results comes as no surprise. It may well be the case that the heterogeneity in performance outcomes results from the dominant reflexive mode at work in the two reflexive conditions. This study also illuminates the fact that reflexive modes are not static

properties of individuals, rather, they are approaches that people can adopt in different situations and context (Dyke et al., 2012).

In fact, Archer (2003: 164) herself is not adverse to this notion suggesting that, "the life of the mind is not a fixed, psychological faculty, but is an emergent and therefore relational property, which is open to mutation." Thus, under the constant gaze of structural determinism, or what Archer (2003) has called downward conflation, reflexivity may well be seen as the intervention that affords individuals their subjective belief about their ability to exert control over their life (Hitlin & Long, 2009). In fact, closer to Archer's view of internal conversation, reflexive modes can also be thought of as interventionist particularly because to think otherwise would suggest structural determinism, and to think along this line would mean surrendering to the forces of the social. For instance, the experience of novel situations imbued in contextual discontinuity may be perceived as stressful and thus threatening to the normal functioning of the organism.

To draw parallels from the coping literature, exposure to stress means setting in motion complex cognitive, behavioural, emotional, and biological processes that serve the purpose of adaptation (Compas, 2006). Left unchecked, the body's automatic stress response system accumulates allostatic load to potentially detrimental long term effects (McEwen, 1998; McEwen & Gianaros, 2011). Countering the automatic stress response system requires volitional coping attempts, these are effortful and conscious processes enacted to regulate action in response to stress (Folkman et al., 1986; Lazarus & Folkman, 1984). It is in the context of volitional coping that the making of the autonomous reflexive might be best understood as resulting from an autonomous reflexivity intervention.

It is the contention here that autonomous reflexivity intervenes and potentially summons the psychological resources needed for adaptive coping, the failure to intervene in such a context signals a pathway destined for fracturing. Thus, while some people are more predisposed to autonomous reflexivity interventions resulting from the quality of their early experience, autonomous reflexivity intervention may also be summoned under particular contextual exigencies. Therefore, to speak about reflexivity intervention is pertinent in accentuating the modalities of the subjective powers of agents to act within and sometimes change the pre-existing structural conditions they are forced to face. Thus, in addition, a practitioner of a dominant mode of reflexivity acting in a pre-established context can also be likened to a reflexivity intervention given that action always postdate

structure. Archer (2003) discusses this interplay between pre-existing structural conditions, reflexive intervention, and outcomes in her morphogenetic approach in much the same way an intervention is related to context and outcomes in the realist review literature, but with one notable exception, the mechanisms of reflexivity intervention remains in a 'black box' in Archer's morphogenetic approach.

An intervention in the realist review literature can be understood as a program that offers resources or information, or enforces action upon a target group (Jagosh et al., 2014) designed to change people's behaviour to support a specific goal (McConnell et al., 2014). It works through mechanisms to create outcomes, in other words, mechanisms are the generative forces that lead to outcomes (Jagosh et al., 2014). To Pawson (2000), a mechanism describes the resources and reasoning that actually constitute the outcomes. Outcomes are the empirical relationships examined (Pawson, 2000), they can be either intended or unintended (Jagosh et al., 2014), but they are not a given, rather they are contingent on context (Pawson, 2002). As Pawson (2000) puts it, the reasoning and resources, the choices and capacities that people direct at a goal, may or may not come to pass. Therefore, Pawson reasons that a holistic understanding of the workings of an intervention is not possible without unpacking how the prevailing balance of contextual circumstances enables, modifies, or nullifies the action of the mechanisms.

Archer (1982) also accentuates the conditioning role of context as part of an overall action system in her 3-stage morphogenetic process (see Figure 1). In this framework T^1 represents the antecedent circumstances, either structural or cultural or both (Porpora, 2013). Archer (2003) terms this phase structural (or cultural) conditioning as it reflects the contextual conditions faced by an agent involuntary placed within an existing social context. People act within their socio-cultural circumstances over time T^2 - T^3, in doing so gradually altering or sustaining those circumstances. Here similarities could be drawn to an intervention in the sense that an intervention, or an agent for that matter, always act out of structured or predetermined circumstances. Indeed, analytically an intervention as in the realist review may be thought of as operating during this analytical moment (T^2 – T^3). For example, Pawson et al. (2004) employ a string of performative conjunctures in describing an intervention as involving the action of people, and as a chain of steps and processes. The results or outcomes at time T^4 are the altered or sustained circumstances (elaboration or reproduction) that comprise the antecedent conditions for any further analysis of action.

Reconciling the ideas of a realist review with the morphogenetic approach in this thesis entails looking at these processes more specifically at the level of the organisational actors embedded within an organisational context. Drawing on the resources of Archer's morphogenetic approach, it may be advanced that organisational actions are indexed in the interplay between the organisational resources and that of the situated actors. However, Archer's morphogenetic approach is more general than specific; it speaks to the situated nature of social action within the broader social system. Notwithstanding, a growing list of researchers in management and organisational studies has identified critical realism as a promising approach (Al-Amoudi & Willmott, 2011).

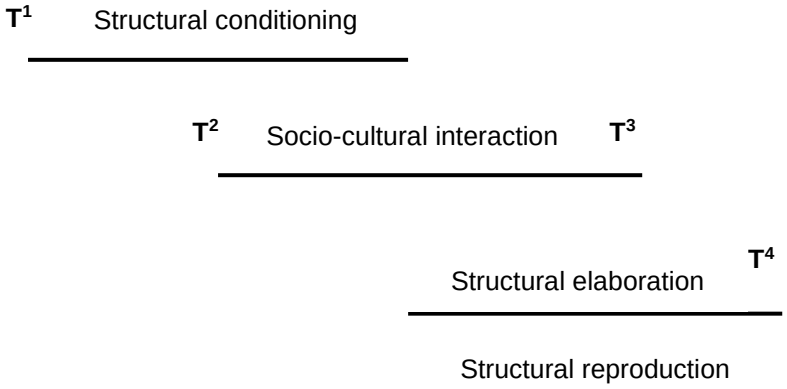

Figure 1: The Morphogenetic Cycle

In particular, analytical dualism as reflected in the morphogenetic approach, is gaining traction as a conceptual vehicle used to illuminate the mechanisms of conditioned action in organisations (e.g., Delbridge & Edwards, 2013; Edwards & Meliou, 2015; Herepath, 2014; Mutch, 2010b). The theoretical approach offered in Delbridge and Edwards (2013) is particularly salient for making the connection between combinations of conditioning influences and likely behavioural outcomes at the level of the individual. These characteristics chime with the spirit of this thesis which seeks to shine a light on the action tendencies resulting from the congruency between context and autonomous reflexivity. In Delbridge and Edwards' framework, appreciating social actions in the actual entails an examination of the conditioning effects of structure on agency in a non-deterministic manner.

As indicated above, the whole edifice of analytical dualism is due to time (Willmott, 1999), this means that separating structure from agency also involves the recognition that "the emergent properties of structures and the actual experiences of agents are not synchronised" (Archer, 1995: 149). Therefore, to Delbridge and Edwards, understanding

the outcome of structural conditioning in situ not only requires a focus on social interactions in the here and now, but necessitates an historical sensitivity. The authors offer actor positions as afforded by organisational arrangements and logics as reflecting the shaping mechanisms of action. Such conceptualisation of the agent's context chimes with the notion of position-practices, that is, sets of structural factors such as roles and their associated practices, commonly employed by critical realists to delineate the objective features of a social system (e.g., Bhaskar, 1994; Greenhalgh & Stones, 2010; Mingers, 2004; Mutch, 2010b).

The agent's present context thus reflects past actions of organisational actors interacting with past social structures (Fleetwood, 2005), or as Delbridge and Edwards (2013) put it, the outcome of past battles sedimented over time to form the context for action (Mutch, 2010b). However, an agent's context is not taken to dictate action in a deterministic way, this is because an historical analysis also enabled the authors to explore the reflexive moment (Edwards & Meliou, 2015) of the agents in terms of past institutional conditioning (Raaijmakers et al., 2015). Modes of reflexivity are dependent on whether personal history was formed as part of contextual continuity and discontinuity (Archer, 2003).

Furthermore, Delbridge and Edwards (2013) reserve the possibility for agency shifts precisely because actors have the capacity to reflect on their social circumstances. Thus, internal conversation is not taken to be fixed, because while these modes of reflexivity are formed as an outcome of past experiences, they are also contingent on the contextual circumstances within which actors find themselves at any given moment. This position is in agreement with Dyke et al. (2012) who consider Archer's categories as types of reflexive approaches that are not fixed but can emerge, adapt, and change as circumstances change. As such, social interactions during the analytical phase $T^2 – T^3$ in the morphogenetic cycle represent a relational intersection of structural and agentic properties at a given time. Consequently, Delbridge and Edwards (2013) showed that during the analytical moment of social interaction, different combinations of agential context and reflexive mode result in different action tendencies at the level of the individual given the same situation. For example, they showed that when faced with the same situational circumstances, some actors saw opportunities for change, while others were unable to challenge existing practices. Figure 2 summarises the conditioning processes described above with psychological resources as additional conditioning mechanisms.

The inclusion of the psychological resources in the actorial framework responds to Delbridge and Edwards' (2013) observation that more needs to be said of the mechanisms through which conditioned action is theorised. In fact, whilst acknowledging the importance of reflexivity, Gillberg and Bergman (2015) also share the view that structural conditioning cannot be discussed without taking into account individual resources. Indeed, the authors speak of psychological resources such as self-confidence as being socially conditioned, distinguishing between resource-strong and resource-weak social surroundings. Thus, consistent with the requirement of a realist review, psychological resources are advanced here as the mechanisms through which a reflexivity intervention may operate. Hence, Figure 2 sets out the theoretical framework which will be used to guide the realist review henceforth.

The above analysis shows that when reflexivity is viewed in terms of an intervention a realist review may be combined with the morphogenetic approach to unpack the action (or behavioural) tendencies resulting from the interplay between autonomous reflexivity and a context deemed congruent. Additional support for adopting a realist review resides in the relatively complex nature of the relationships under interrogation. Indeed, realist reviews are believed to be particularly well suited to analyse complex and disparate data (Kastner et al., 2013), and explore mediating mechanisms (Kastner et al., 2012), often involving multidisciplinary settings (e.g., Kastner et al., 2011; O'Campo et al., 2009), these are all inherent features of this investigation. Furthermore, internal conversation as the main subject under investigation has not received much attention in the literature and as such, there is a dearth of empirical work that focuses on autonomous reflexivity.

An initial literature search revealed that all of the published empirical studies have adopted a qualitative methodology; these subtleties suggest more complex analysis of data in order to make sense of findings in relation to the research questions. And lastly, the nature of the research questions dictates that the study draws on concepts and ideas from different disciplines, such as, sociology, psychology, and organisational behaviour, altogether adding to the complexity and thus strengthening the case in favour of a realist review.

Pawson et al. (2005) propose five steps to carry out a realist literature review: (1) clarify scope; (2) search for evidence; (3) relevance appraisal; (4) synthesise evidence and draw conclusions and finally; (5) disseminate, implement and evaluate. However, some authors opine that these steps are not meant to be cast in stone, for example, Jagosh et al. (2014:

131) argue that the logic of a realist review "makes it antithetical to standardised, predetermined or prescriptive application." As such, the authors recommend that "suitably customising the realist approach to the characteristics of a body of evidence can optimise review outcomes that can improve knowledge translation and facilitate decision-making" (Jagosh et al., 2014: 132). Against this understanding, a customised version of the realist review was applied in this work, this is because, it was used for its strength as a systematic, evidence-driven, theory building tool rather than an instrument for policy evaluation. In spite of the tailored approach, care was taken to uphold the quality standards required for such a review and in this light the instructions in Wong et al. (2014) were instrumental.

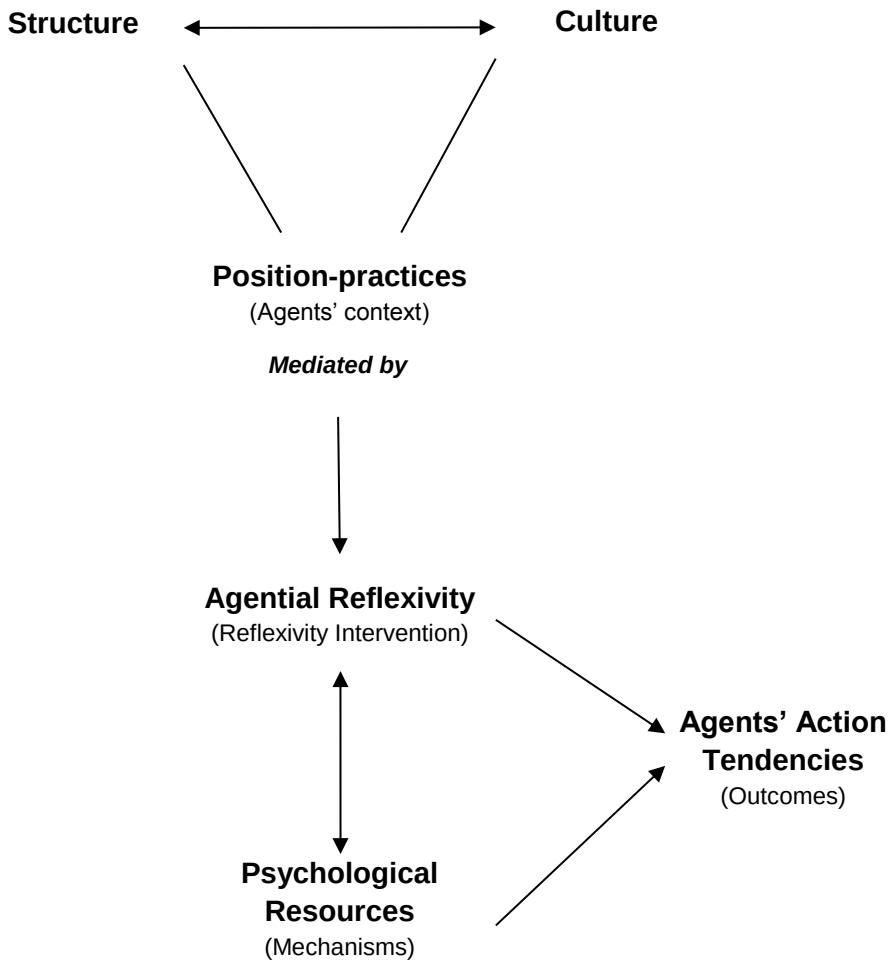

Figure 2: Outlining a Morphogenetic Approach to Organisational Behaviour (adapted from Mutch (2010b: 511))

2.3 Formulating the Middle Range Theory (MRT)

Research question number 2 and its associated interrelated aims were designed to tap into the various components of the context-mechanism-outcome (CMO) framework. According to Pawson et al. (2005), the first step in the review process entails making explicit the underlying assumptions about how an intervention is meant to work and what impacts it is expected to have. To achieve this, Pawson et al. (2004) suggest that the reviewer must temporarily adopt a primary research rather than synthesis role and scavenge ideas from a number of resources. In this regard, the first step involved a thorough understanding of the dynamics of autonomous reflexivity. In the realist review vocabulary, the scoping phase is predominantly concerned with uncovering middle-range theories (MRTs).

An MRT is a "theory that lies between the minor but necessary working hypotheses (...) and the all-inclusive systematic efforts to develop a unified theory that will explain all the observed uniformities of social behaviour, social organisation and social change" (Merton, 1968: 39). An MRT is thus a means of hypotheses-construction that will act as a guide to the design of social inquiry (Pawson, 2000). In other words, an MRT is used to shape the identification, selection, and appraisal protocols (Jagosh et al., 2014). The criterion set for the MRT at this stage of the review was that it had to provide overarching explanatory support that was 'adequate enough' (Jagosh et al., 2014) to analyse the dynamics of autonomous reflexivity in terms of its mechanisms, outcomes, and context in order to illuminate the research question.

There are various ways to formulate an MRT. It can be formulated on the basis of existing theory and past experience (or precedence) (Weick, 1989). When the latter is not available Marchal et al. (2010) recommend the use of exploratory on-site research to unearth what Pawson and Tilley (1997: 77) call "folk theories." Individual or group discussions (Rosas, 2005; Rycroft-Malone et al., 2012) have also been used to identify concepts and clarify terms in relation to a review question. Furthermore, additional information may be derived from programme or policy documents (e.g., Hoare et al., 2012; Shepperd et al., 2009). A number of studies have also relied on a literature review in conjunction with one or more of the methods cited above. For instance, Byng et al. (2005) constructed the middle-range theory on the strength of a literature review, a description of the intervention, and discussions with facilitators involved in the programmes in question (Marchal et al., 2010).

In this review, the main source of inspiration was Archer's "Making our Way through the World," a summary of the findings of this exploratory outing is provided below as a prelude to the realist review proper. To begin with, Archer's (2007a) seminal work, 'Making our Way through the World' was carefully analysed. In this seminal work Archer provides a persuasive exposition on the modes of reflexivity detailing the specificities of the early natal influences most likely to trigger each of the four modes. Archer's work is written to illuminate a sociological position, on the one hand, of how the social attempts to enter into individuals, and on the other, the subjective power of the agents to act back on the social influences. As such, Archer's analyses are predominantly steeped in explanations of a sociological nature, however, from time to time she relies on psychological mechanisms to illuminate these psychosocial dynamics. In particular, this initial exploration of Archer's writing revealed that the idea of internal conversation appears to be variously linked with coping in childhood.

According to Archer, the autonomous reflexives are to varying degrees *home alone* (Archer, 2007a). In a Giddensian account of reflexivity such home aloneness would probably signal the onset of existential anxieties potentially threatening to the stability of the self, signalling a quick return to contextual continuity if fracturing is to be avoided. The young communicative reflexives are expected to be sheltered from such anxieties whereas the mature subjects to look to *similars* and *familiars* in search of psychological safety. This is because, according to Archer, these subjects "put their trust in others rather than in the self, trusting relationships are indispensable to them" (2007a: 159). However, in order to resist fracturing and cope with the aloneness, the autonomous reflexives need to draw on their own resources.

Thus, Archer equips the autonomous reflexives with self-confidence, noting that, "the experience of discontinuities and the confidence to handle them are mutually reinforcing; together they generate self-reliance" (2007a: 194). She goes a step further, "Indeed they appear to be dialectically related in the sense that to cope successfully by oneself in unfamiliar situations yields a sense of satisfaction which enhances self-confidence…." (2007a: 194). Archer is not the only author to connect the social domain with the notion of reflexivity and personal resources. Arguing from the lens of Layder's (2004; 2006) psychobiographical domain, Gillberg and Bergman (2015) also take the view that the social settings that produce resources in the form of self-confidence serve as factors that strengthen autonomous reflexivity. On the basis of these observations, self-confidence

was retained as a psychological mechanism of autonomous reflexivity embedded within a wider coping framework.

For outcomes, the first outing involved an examination of the self-efficacy literature. In this body of work the concept of self-efficacy is often used to measure the impact of self-confidence on performance. For example, in sports psychology, self-confidence is one of the most frequently cited psychological factors thought to affect athletic performance (George, 1993), and self-efficacy theory is the most extensively used theory for investigating self-confidence in sports settings (McCormick, 2001). Moreover, in the emerging field of positive psychology, confidence and efficacy are used interchangeably (Luthans et al., 2006c) to mean "people's judgements of their capabilities to organise and execute courses of action required to attain designated types of performances" (Bandura, 1986: 96).

While self-confidence and self-efficacy are not exactly identical concepts (McCormick et al., 2002), they are nonetheless related and as such, for the purposes of this study, they were considered synonymous (Shipman & Mumford, 2011), in particular given the interest in the impact of autonomous reflexivity in the work domain. Turning attention to the seminal writings of Bandura (1977; 1978; 1982; 1990), the literature search revealed an abundance of research in which self-efficacy predicted performance (Ayeni, 2006). For instance, a meta-analysis conducted by Stajkovic and Luthans (1998) revealed 114 studies that found enhanced self-efficacy to predict successful task performance. In addition to the broad description of job outcomes in terms of task performance, self-efficacy has also been shown to be related to creativity (Rego et al., 2011) and innovativeness (Bandura, 2002). Creativity and innovativeness are often used interchangeably (Mostafa, 2005) in research work, however, in their seminal study, Scott and Bruce (1994) reconciled the two terminologies under the rubric of innovative behaviour.

Looking back across Archer's writing provided further motivation to retain task performance and innovative behaviour as potential outcomes of an autonomous reflexivity intervention in the workplace. For instance, Archer observes that the autonomous reflexives are particularly driven by performative achievements (Kahn, 2009), they are "tasked oriented" (Archer, 2007a: 296) and "most important to autonomous subjects is being good at what they do" (*ibid.*, 290) evidenced in their work ethics (Chandler, 2010). Furthermore, fuelling their expansionist ambition also means

that the autonomous reflexives try to navigate their occupational domain with strategic creativity resorting to "circumvention by innovation" (Archer, 2007a: 294) when faced with structural constraints. Circumvention also means that the autonomous reflexives have a tendency to come into collision with established practices and to seek to change them (Mutch, 2007).

While these agents of change (Kuk & Kirilova, 2013; Mutch, 2007) seek to mould the social in their liking, they are also fast at embracing change proactively in order to remain one step ahead of the field (Archer, 2007a). Inspecting the organisational change literature revealed that the reinforcement of employees' feelings of self-efficacy is often accentuated as a mechanism for improving change readiness (Neves, 2009). For instance, Bernerth (2004) argues that during stressful times, such as organisational change, low self-efficacy presents a negative cyclical relationship This is because, individuals who judge themselves as incapable of coping with environmental demands will tend to dwell on personal deficiencies and magnify the severity and difficulty of the task/change at hand, thus making it more difficult to change their own behaviours. Hence, a generally positive attitude towards organisational change was also retained as a further potential outcome.

In terms of context, Archer's (2007; 2003) work remained instructive. In these works, she observes that autonomous reflexives neither need nor welcome supervision at work; they are their own task masters and shun the conviviality of working group as a distraction (Archer, 2003). Instead, they strive for occupational positions they believe will afford them a significant degree of control and autonomy. In particular, they are motivated by work features that promote novelty, variety and flexibility (Archer, 2007a).

Combining all the elements of the first exploratory visit, the following MRT was formulated as follows:

> The practice of autonomous reflexivity triggers the emergence of self-confidence/efficacy. Once emerged, autonomous reflexivity and self-efficacy are held together in a mutually reinforcing relationship which is relatively enduring. Autonomous reflexivity seeks for autonomy at work that parallels their autonomous mental activities. This autonomous context is reflected in work features characterised by novelty, variety and flexibility. When a position is assessed as congruent, the autonomous reflexives will invest time and apply the weight of its psychological resource in the pursuit of high performative standards.

> These performative skills are often translated into positive organisational outcomes frequently indexed in superior task performance, innovative behaviour and a positive attitude towards organisational change.

2.4 Searching, Selection and Appraisal, and Synthesis

2.4.1 The Searching Process

The search for evidence to support the theoretical framework articulated by the MRT was initiated with the knowledge that no prior quantitative studies exist that have seriously interrogated the statistical validity of the internal conversation index (ICONI) in the form presented by Archer. Indeed, prior quantitative studies of autonomous reflexivity would have examined the psychometric properties of the ICONI, when questioned about accessing the ICONI Archer's reply was interesting to say the least:

> No, you will not find ICONI published anywhere. I give it out freely to genuine academic colleagues but dread sitting on a plane one day and finding 'Discover what type of Reflexive you are' in an In-Flight magazine! (Archer, 2015).

Thus, from the outset, quantitative and indeed mixed-methods studies were by default excluded. The purposive strategy focussed on qualitative evidence, it started with a systematic search in six online databases: Springer, ProQuest ABI, Science Direct, Web of Science, Business Source Premier, and Google Scholar. The searches were executed for the period 2003 to 2015. Searches were limited to this time frame because the idea of internal conversation as articulated from a critical realist lens first appeared in Archer's (2003) "Structure, Agency and the Internal Conversation." Consistent with the purpose of the review and the fact that the notion of internal conversation is relatively nascent, the search strategies were deliberately broad. The search terms were truncated in order to capture different uses of the intervention term, that is, of autonomous reflexivity. Thus, the truncated term appeared as autonomous reflexiv* (i.e., to capture the suffixes reflexivity, reflexives, reflexive) in some of the databases searched. During the search process it transpired that the use of truncated terms is not possible in Google Scholar, instead the following Boolean operator was utilised, "autonomous reflexivity" OR "autonomous reflexive" OR "autonomous reflexives."

2.4.2 Selection and Appraisal of Documents

A total of 502 references registered electronically were returned from the search strategies. Those references were mostly academic articles, however, a few represented offline

materials such as books, book chapters and PhD theses. Preliminary screening of the scholarly works reduced the list of potentially relevant publications to 138. The preliminary screen was intentionally inclusive to capture all publications potentially relevant to the review purpose. Therefore, in the interest of a comprehensive review, the initial level of screening erred on the side of inclusion in line with McCormack et al.'s (2013) recommendation, wherever a title appeared to be potentially relevant to the concept of autonomous reflexivity or any proximal ideas such as morphogenetic approach, analytical dualism or internal conversation. Furthermore, at this stage, the few references that were not in English were excluded as it was not possible to translate them. Following the preliminary screen, the abstracts of academic articles as well as other offline academic works assessed as relevant were retrieved for a more detailed screening.

The screening of the abstracts was made based on the presence (or absence) of empirical data (Mazzocato et al., 2010) about the characteristics of autonomous reflexivity in social settings, such as career or employment. It must be stressed that while the search was conducted online, care was exercised to ensure that the works that were not readily available online were located and fully screened to ensure that critical information was not being omitted inappropriately. Upon reviewing the abstracts, a further 30 publications were dropped, further reducing the list of potentially relevant works to 108. In the next stage of the appraisal process all the seemingly relevant works were retrieved in full text for a more detailed relevance test (Rycroft-Malone et al., 2012). The aim of this test was, once again, to include rather than to exclude material in the final list (McCormack et al., 2013) and therefore careful consideration was given to strike a balance between *relevance* and *rigour* as recommended in Pawson et al. (2005). Consistent with Pawson (2002), a relevant article provided details about methodology, sample size, data collection, and in particular a clear rationale about the claims made. Indeed, a great deal of manual screening was devoted to this stage of the process.

Most of the articles excluded were found to be of no relevance to the spirit of the investigation in that they did not capture any of the components of the CMO framework, whilst some provided only anecdotal evidence about the claims made. After careful consideration, a final list of 25 articles was retained in addition to Archer's "Making our Way through the World," and "Structure, agency and the internal conversation" and alongside a book chapter by Porpora and Shumar (2010), entitled "Self-talk and self-reflection: A view from the US" as well as two recently completed PhD theses: a total of 30 scholarly works. All of the works retained, with the exception of Porpora and Shumar

(2010), employed a qualitative methodology with most being rich in biographical data about their subjects. While the work by Porpora and his colleagues does not validate the ICONI as designed by Archer, it did provide useful parallels to draw on during the validation process. Table 1 summarises the work processes from database selection through to screening processes and the final selection of included works.

Table 1: Distribution of Papers and Search Strategy

	Search Strategy Development Articles retained after…				
Name of Database	**Initial list of papers**	**Preliminary screening of titles**	**Abstract screening**	**Full document screening**	**Retained for data extraction**
Springer	6	2	1	1	1
ProQuest ABI	18	4	1	1	1
Science Direct	1	0	0	0	0
Web of Science	7	1	1	1	1
Business Source Premier	2	0	0	0	0
Google Scholar	467	131	105	27	27
Total	**502**	**138**	**108**	**30**	**30**

*Note: Reflects the inclusion of Archer's "Making our Way through the World"

2.4.3 Data Extraction and Synthesis

The aim of the data extraction process is to populate the evaluative framework with evidence; in this study this meant populating the middle-ranged theory established a priori with evidence from primary studies. The relatively limited number of studies and the fact that the existing studies did not particularly focus on psychological mechanisms per se meant that a high level of data abstraction was needed. Careful examination of the interviewees' responses as well as authors' interpretations of those responses were needed to compile a list of evidence. Relevant data were extracted by employing the thematic content analysis technique. Thematic content analysis involves generating frequency counts of the dominant themes in a dataset that can be used to guide a thematic approach to analysis, which typically involves identifying themes within a dataset and comparing those themes to the study purpose and existing literature (Weber, 1990). The initial coding was based on a preliminary list of codes inspired by the MRT (Marchal et al., 2010); these provided a template to interrogate the papers (Rycroft-Malone et al., 2012).

Extracted data were exported to an Excel Spreadsheet and tabled around the context, mechanisms, and outcomes of an autonomous reflexivity intervention. This process was more confirmatory in nature as it sought to extract keywords and patterns to formulate themes in line with the theoretical framework. Direct quotations from the articles were often most informative (Rycroft-Malone et al., 2012), these were retained as supportive evidence accompanied by the page number from which they were taken. In a second round of analysis, some themes and patterns emerged that were not accounted for by the initial MRT. Making sense of these emergent patterns called for a revisit of the literature. Indeed, Wong et al. (2013) note that the steps involved in a realist review are not linear. According to Pawson and colleagues, "there always comes a rather ill-defined point in the sifting and sorting of primary models where you change from framework building to framework testing and from theory construction to theory refinement" (Pawson et al., 2005: 31).

These revelations stopped the extraction process in its track. At this point, the coping literature was explored in greater depth with the intention of further unpacking the psychological resources associated with coping, particularly in children and adolescents faced with contextual discontinuity. The second exploratory outing led to a more substantive exploration of the literature on resilient children. This exercise provided much needed clarity and the extraction protocol was updated accordingly. Once the extraction of raw data was completed and the raw data themed in relation to each component of the theoretical framework, the themes were used to create chains of inference. A chain of inference is a connection between the themes identified (Rycroft-Malone et al., 2012), as well as linking them to the primary data that generated the themes (Mogre et al., 2014). To establish a chain of inference, the theme must be evident in more than one paper (McCormack et al., 2013). Constructing chains of inference was an iterative process which involved keeping track of the primary data that generated the themes.

2.5 Findings and Discussion

In this section the primary findings from the analysis of the qualitative data, in terms of autonomous reflexivity mechanisms, outcomes and context are discussed. In order to remain consistent with the theoretical framework that guided data extraction and analysis (McCormack et al., 2013), the findings are reported to correspond to the research aims. They are drawn from the themes and chains of inference, in addition to what was learnt

from the various exploratory outings. Table 2 reports the themes and chains of inference which were guided by the initial MRT.

Table 2: Chains of Inference (a priori) linked to Themes and Articles

Chains of Inference (sub-theory level)	Confirmed by the following themes	Authors/Articles
Self-confidence/efficacy	Determination Commitment Efficacy Self-esteem Highly competent Challenge seeking	Luckett and Luckett (2009); Tian (2012); Colombo (2011); Greenbank (2010) ; Clayton (2015); Gillberg and Bergman (2015); Cieslik (2006); Archer (2007a)
Performance Quality	No mediocrity Dedicated to work Productive Strong work ethic Hard work High performative expectations	Luckett and Luckett (2009); Mutch (2007); Kahn (2009); Cownie (2015); Mihailescu and Mihailescu (2012) Roed (2012); Gillberg and Bergman (2015); Dyke et al. (2012); Archer (2007a)
Innovative Behaviour	Innovative Creativity Strategic stance Circumvent constraints Inventive capacity Curiosity Original ideas	Mutch (2007); Simpson and Cieslik (2007); Czerniewicz et al. (2009); Romano (2009); Mihailescu and Mihailescu (2012); Clayton (2015); Delbridge and Edwards (2013); Gillberg and Bergman (2015); Stevenson and Clegg (2012); Archer (2007a)
Positive Change Attitude	Instigator of change Implementer of change Able to handle uncertainty Readiness	Tomassini (2015); Mutch (2007); Cownie, 2015; Clayton, 2015; Gillberg and Bergman (2015); Luckett and Luckett (2009); Archer (2007a)
Organisational Contextual Discontinuity	Control Novelty Autonomy Flexibility Freedom Independent Experience of choice Culture of learning Cognitive space Variety/changeable	Bovill (2012); Mutch (2007); Cownie (2015); Simpson and Cieslik (2007); Romano (2009); Colombo (2011); Roed (2012); Gillberg and Bergman (2015); Dyke, Johnston and Fuller (2012); Delbridge and Edwards (2013); Archer (2007a)

In Table 3 the evidence reflects the themes and chains of inference that emerged during data immersion. The column for authors/articles serves to provide guidance on the

frequency of occurrence for each of the themes and chains of inference across all the works retained for the review.

Table 3: Emergent Chains of Inference linked to Themes and Articles

Chains of Inference (sub-theory level)	Derived from the following themes	Authors/Articles
Resilience	Readiness Solid temper and standing Do not give up easily Prepared to face challenges Self-reliant Overcoming difficulties Proactive	Tomassini (2015); Luckett and Luckett (2009); Bovill (2012); Farrugia (2011); Tian (2012); Cownie (2015); Gillberg and Bergman (2015); Archer (2007a)
Hopefulness	Independent Future oriented Search for opportunities Planning Agentic strategies Internal locus of control Multiple pathways	Tomassini (2015); Luckett and Luckett (2009); Kahn (2009); Bovill (2012); Guzmán-Valenzuela and Barnett (2013); Farrugia (2011); Greenbank (2014); Tian (2015); Simpson and Cieslik (2007); Colombo (2011); Greenbank (2010); Clayton (2015); Gillberg and Bergman (2015); Dyke, Johnston and Fuller (2012); Stevenson and Clegg (2013); Dismore (2014); Archer (2007a)
Optimism	Internal locus of control Not pessimistic Entrepreneurial identity Independent Realistic Open-minded Future oriented Pursue opportunities Pragmatic	Luckett and Luckett (2009); Farrugia (2011); Greenbank (2014); Mihailescu and Mihailescu (2012); Colombo (2011); Greenbank (2010); Clayton (2015); Gillberg and Bergman (2015); Stevenson and Clegg (2013); Dismore (2014); Archer (2007a)
Job Satisfaction	Intrinsic satisfaction Fun Enjoyable	Cownie (2015); Gillberg and Bergman (2015); Luckett and Luckett (2009); Archer (2007a)

The findings related to the mechanisms are discussed first followed by outcomes; these in turn inform the findings related to context. The connection between chains of inference from each of the different component areas of the CMO are then discussed supported with evidence where available. This is with a view of linking the findings with the overall theoretical framework (or MRT) proposed for this review. The outputs of this section thus

are in the form of refined hypotheses that are retained for statistical testing during the quantitative study.

2.5.1 Autonomous Reflexivity and Psychological Resources

Emergent patterns and themes indexed resilience, hope and optimism as potential psychological mechanisms of autonomous reflexivity in addition to self-confidence/efficacy. A systematic analysis of the literature on resilient children (available on request) provided overwhelming evidence supporting these self-concepts as positive and critical coping resources for resilient adaptation. For example, Rutter (1987) speaks in terms of establishment of self-esteem and self-efficacy. Moreover, Bolger and Patterson (2003) found that maltreated children with internal perceptions of control were more likely to be later classified as resilient than were maltreated children with external perceptions of control.

Some authors have also argued that children who are generally able to remain hopeful about the future, are flexible and adaptable, possess problem solving skills, and actively try to assume control over their lives, are likely to be less vulnerable than those who passively accept the adversity they face (e.g., Boyden & Mann, 2005; Punamaki, 1987). Optimism on the other hand is related to global expectation that the future will bring good things (Peterson, 2000). These globally positive expectancies are considered a major determinant of whether people continue to pursue valued life goals against the backdrop of adversity (Klasen et al., 2010). As much as these emergent findings were welcomed they also elicited uncertainty in the sense that they were not immediately visible in Archer's writing. In order to make sense of these findings a decision was taken to seek the wise counsel of Archer herself. When the initial findings were put to her, her reply was reassuring:

> Apologies for this slow response…. It sounds as though your research findings and my theorising have gelled pretty well (by the way, I have a trilogy of CUP book on reflexivity: 2003; 2007; 2012)… (Archer, 2014a).

The realist review stands apart from other types of reviews owing to the purportedly inherent transparency of its methods. Indeed, Pawson et al. (2004: 40) assert that the realist review "bring[s] a logic and a structure to the review process, which may in fact formalise what the best narrative reviews have done instinctively and ensure that the process of realist review is transparent and open to critique and challenge by others." Speaking of critique, and if one can be allowed here, a notable lack that seems to permeate

most realist reviews concerns connecting findings with existing theories. Whilst most authors tend to exercise diligence in as much as rigorously upholding the method specifications, findings are most often presented as *faits accompli*. Linkages between interventions and explanatory theories are seldom detailed enough for external readers; the reviews seem to implicitly target a specialist audience in most cases.

The subtleties and novelty even, of the approach taken in this thesis dictates that the thread of transparency remains visible in presenting the findings. As such, the findings offer a short prelude on the mechanics of each of the psychological resources identified. The evidence from primary studies supported by quotations where appropriate are then presented and linked with the characteristics of the mechanism under consideration. An additional important measure of rigour involves using constant comparison and contradictory evidence to generate insights about the influence of context (Pawson et al., 2005). In this work, this criteria was translated as comparing internal conversation under different contextual conditions. Therefore, to reflect the intervention of internal conversation in different contexts, the findings of autonomous reflexivity mechanisms are compared with those of communicative reflexivity.

2.5.2 Self-Confidence/Efficacy

Self-confidence is a psychological leaf straight out of Archer's sociological understanding of human nature. Archer elaborates the mechanisms underlying the emergence of self-confidence in terms of a dialectical interplay between discontinuities in the natal context and the ability to successfully cope by oneself. Indeed, the significance of reflexivity to coping is summed up quite neatly by Farrugia (2011: 365), "Paul's reflexive rationality emerges as a way of coping with the dangers of homelessness." Discontinuities such as homelessness for instance, may be imposed or sometimes pursued, whichever format, novelty ensues. Thus, Archer (2007a: 194) makes it perfectly clear that "subjects need to have developed sufficient self-confidence to marshal their own resources to meet situations for which the natal context provides no scripted responses or normative regulation".

Expressions of self-confidence flow through the biographies of most of Archer's autonomous reflexives. As Donna expresses, "From the way my parents were with me, I was very confident, very dominant. I could do a lot of things that other teenagers my age wouldn't do, I was very self-sufficient" (2007a: 197). To Oliver, confidence appears to have manifested at an older age, "I wouldn't class myself as being a confident person

when I was younger, I would have said that I was quite quiet and reserved. Well, now I'm older, wiser, much louder and much more self-confident" (*ibid.*, 197). As for Lucia, the challenging rules and resources of the fashion and design industry could not hold her back from chasing her childhood dream of becoming a fashion designer, "I jumped into the fray. This is my personality: I am very brave and self-confident…" (Tomassini, 2015: 268). In Colombo's (2011) study of decision-making in the educational domain using a sample of young Italians, the tendency of self-confidence to manifest in the autonomous reflexives is discernible in Lara's and Serena's (17 and 15 year old girls respectively) responses:

> Therefore, the respondents of the PRIN study show a considerable amount of self-efficacy and control of their beliefs by declaring to be free to choose whatever they want… (Colombo, 2011: 41)

The evidence from the primary studies also suggests that unlike the autonomous reflexives, the communicative reflexives are deprived of the opportunity to experience a sense of self-satisfaction derived from self-confidence, they trust in others. For instance, Alf a retired pitman draws his strength from his network of friends, "Well, if you haven't got friends, what sort of bloody life you have got? Family's all well and good, but you don't want to depend on family all the time..." (Archer, 2007a: 160). Jon looks up to his parents, "I respect my parents' opinion on matters because when all is said and done, they're older than me and have more experience of life, so I do value their opinion" (*ibid.*, 160).

Andrew, who features in Roed's PhD thesis, works as a university lecturer, his communicative reflexivity "emphasises the importance of sharing supervisory responsibility and discussing progress and actions with members of his supervisory team" (Roed, 2012: 82). Hence, for the communicative reflexives whose context is characterised by dense relational ties, and are always surrounded by significant others to which they can turn in times of need, the need to 'cope alone' and thus to become self-reliant is greatly attenuated. Indeed, reflecting on Ray's attitude towards adult learning Cieslik (2006: 242) notes, "He often spoke of 'lacking confidence' and this had deterred him from joining an adult English class."

While self-confidence is clearly important in relation to coping it does not manifest in a vacuum. Archer does make the point that to cope successfully by oneself yields a sense of satisfaction which in turn enhances self-confidence. In fact, to speak in terms of

successful coping parallels the idea of resilience. However, Archer only briefly preludes the dynamics of coping in her theorising of the human condition, more or less skimming the surface of what is effectively a very important developmental psychosocial competence. The relationship between coping resources and social domain finds saliency in Bandura's (1986; 1989; 2001) seminal contributions to social cognitive theory.

Like Archer, Bandura is a staunch ally of an active consciousness directing the intentionality of human action. Much like Archer, he argues in favour of an emergent interactive agency (Bandura, 1991) stressing that, "persons are neither autonomous agents nor simply mechanical conveyers of animating environmental influences" (Bandura, 1989: 1175). Assigning primacy to conscious rather than non-conscious motivation, Bandura views the core features of human agency in terms of self-regulatory mechanisms indexed in intentionality, forethought, self-reactiveness, and the metacognitive activity of self-reflectiveness. He also makes the connection between metacognition and psychological resources more explicit than Archer, for him self-efficacy works in the intervening space between these self-regulatory mechanisms and action variously influencing human agency. In respect of an overarching coping framework, this signifies that "people's beliefs in their capabilities affect how much stress and depression they experience in threatening or taxing situations…" (Bandura, 1990: 146).

People who believe they can exercise control over potential threats do not conjure up apprehensive cognitions and, hence, are not perturbed by them (Bandura, 1990; Ozer & Bandura, 1990). Bandura (1989) goes further to connect individual experience and emergent resources, noting that self-efficacy benefits from mastering difficulties through perseverance. According to him, "some setbacks and difficulties in human pursuits serve as a useful purpose in teaching that success usually requires sustained effort" (Bandura, 1989: 1179). In essence, Bandura is mindful of the role of context in shaping the resources available for individuals, implying contextual discontinuity rather than continuity as resource-strong. Thus, he is effectively linking contextual discontinuity with the emergence of a resilient self-efficacy, "by sticking out through tough times people emerge with a stronger sense of efficacy" (1989a: 1179), he argues.

Resilience is what allows people to keep trying, and to restore their self-efficacy even after it has been challenged and predicted to decrease due to a setback (Luthans et al., 2006b). Therefore, reading from Bandura and Archer respectively, although less implicit in the case of the latter, converges on the fact that self-confidence/efficacy in its own right

does not sufficiently account for positive outcomes; it is the resiliency of self-belief that counts (Bandura, 1988). Indeed, the evidence that has emerged from the studies analysed speaks persuasively to the strength of character associated with autonomous reflexivity indexed in a determination to take on any challenges, Aleem is an ex-convict and could not have put it any more telling, "If a barrier comes up, that barrier is getting broken"(Stevenson & Clegg, 2012: 25).

2.5.3 Resilience

In spite of the disagreement on definition, most authors agree that resilience broadly concerns "the ability to grow and move forward in the face of misfortune" (Jackson et al., 2007: 3). The evidence from primary studies are indeed replete with examples of perseverance and the will to forge ahead in the face of adversities. The story of one of Archer's (2007a) autonomous subjects, 30 year old Martin divorced with two children aged nine and twelve, is a fitting testament. During the first ten years of his life, Martin and his younger brother were moved several times, from one form of care to another, until they were adopted when Martin turned 11. Stability ensued following adoption, however, parental support did not materialise or perhaps did not meet Martin's approval; according to him, "the growth of closeness and concern seems not to have happened" (*ibid.*, 120). It is expected that against a backdrop of unstable upbringing and lack of parental support, serious psychological dysfunctionalities would ensue. Indeed, towards the end of his interview Martin makes reference to the painfulness of these relational absences and his resorting to seeking professional help:

> …Certain things in my past I have not been happy with at all, and it's really bothered me. But I've had counselling for that kind of issue and I've been through various points in my life and personal things that happened – I think it's just acceptance of what's done is done… (*ibid.*, 121).

Reading from Archer, it is evident that Martin's experience as a young child had been marred by exposures to different types of risks. However, exposure to adversities whilst initially adversely impacting his psychological health, seems to have activated his coping mechanisms and resilience capacity to effectively navigate the social contingencies in later life, Rutter (2006, 2007) refers to this phenomenon as the steeling effect. On the other hand, DuMont et al.'s (2007) study supports the hypothesis that resilience in adolescence leads to resilience in adult life. Indeed, in spite of exposure to risks and adversities in childhood, Martin was able to establish a successful modus vivendi in the social order to live out his ultimate concerns. Moreover, his life journey is also coloured

by events involving bouncing back, such as from a failed marriage, a relationship that did not work, and being dismissed for gross misconduct. In spite of all these setbacks, Martin made steady progress up the socio-occupational ladder. Resilient individuals are also said to be particularly competent at work and seem to display performance standards exceeding those of less resilient peers (e.g., Luthans et al., 2006b; Youssef & Luthans, 2007), this potentially serves to account for Martin's rapid career progression in his current job. The resilient nature of autonomous reflexivity has also been consistently revealed to other authors. For example, resilience is recognisable in one of Bovill's autonomous subject's articulation:

> Got my results back today. Bit disappointed got 67%. This time last year would probably be happy with that but having gone out on a high at the end of year one, I am disappointed. At least this year I feel much better placed to dust myself down and get on with the next one. Don't intend to get less than 70% again, no matter what it takes. (Diary entry, December 2010) (Bovill, 2012: 695).

The work by Cownie (2015) speaks to resilience and autonomous reflexivity perhaps more directly. Cownie conducted a biographical study of Clair Palley who became the first woman to hold a Chair in Law at a United Kingdom university, reflecting on Claire's early educational project she notes:

> This approach to resolve a serious setback in the project upon which she had embarked, of getting a good degree, by thinking what to do and getting on with it, along the line 'I got myself into this mess, now I have to get myself out of it' displays precisely the characteristics of Archer's 'autonomous reflexives' (Cownie, 2015: 136; 137).

Indeed, bouncing back from setbacks is the hallmark of a resilient person; Cownie does in fact go on to make a case for resilience more persuasively:

> Her personal qualities highlighted by the Archerian analysis, included a strong streak of determination and resilience, supported by an independence of mind which reflected an inner strength (Cownie, 2015: 148; 149)

In terms of career resiliency, none is more compelling than Billy's story. A 60 year old son of a miner, Billy's story is one of "severe and protracted struggle between structural constrains and an unflagging personal determination to overcome them to get on" (Archer, 2007a: 208). With little to show for in terms of qualification, Billy started his career as a driver for a wholesale grocer's warehouse and was quickly promoted to supervisor of the warehouse. When he was made redundant in his early twenties Billy was unqualified but

for a driving licence to his name. However, he gained re-employment with an engineering company involved in making blades for turbines. He invested his energy in his work, gained additional licences, and was soon made supervisor. After ten years in the job he was once again made redundant. Having freshly secured a new job with a wholesale stationer, Billy worked himself up again only to be made redundant for the fourth time a few years later. Billy's occupational biography is punctuated by highs and lows, nonetheless marked by a consistent pattern of not willing to give in to structural constraints. Indeed, Lucia an aspiring fashion designer in Tomassini's study is similarly steadfast in the face of potentially career damaging contingencies:

> When the economic crisis hit the fashion sector and her company, she was quick to transform herself into an external consultant and at the same time she found a job as a teacher, in the same school in which she gained her own training... She believes that the main factor allowing her to learn so much from every situation is the absence of constraints in her mind and her energetic spirit that keeps driving her towards new experiences (Tomassini, 2015: 268).

Much has been learnt over the years on the determinants of resilience. In spite of the depth and breadth of knowledge on this phenomenon, it still seems to radiate an aura of mystery. In the eyes of Richardson for instance, "resilience is a capacity in every soul" (2002: 315), or even "the energy or force that drives a person from survival to self-actualization may be called quanta, chi, spirit, God, or resilience" (ibid: 315). Cicchetti (2013) is less mystified but nonetheless still perplexed that maltreated children still manage to sustain some strivings towards resilience in spite of the absence of warm, nurturing, and mirroring aspects in parent-child relationships believed to be central to positive self-regard. Emerging research on the neurobiology of resilience has the potential to provide a better understanding of how the brain functions under stressful internal and external demands (Masten, 2014). However, Bonanno and colleague have expressed guarded optimism, "as promising as the neuroscience evidence may be, however, describing these advances in terms of resilience per se seems to us premature" (2013: 23).

Another interesting proposition, particularly in the context of this study, is the view of resilience as reflexivity (Winkler, 2014, emphasis added). There seems to be a common understanding of uncertainty as the common thread running across the various ontological commitments of modernity. Increasingly viewed in terms of a set of negotiations, or engagements between subjects and their environments (O'Brien, 2014), resilience fits with this social ontology of uncertainties whereby people have to show their own

initiative as active and reflexive agents capable of adaptive behaviour (Joseph, 2013). In other words, resilience in the context of modernity signifies a decline in the significance of enduring social relations, in favour of an emphasis on autonomous and reflexive individuals (Joseph, 2013; O'Brien, 2014). Assertion as such attracts support from the exploratory study of some newly qualified care workers conducted by Kearns and McArdle (2012), who found self-efficacy and space for reflexivity as more prominent sources of resilience and strong identity. These arguments and findings bode particularly well with the findings of this review. Another interesting link between autonomous reflexivity and resilience is advanced by Tomassini (2015: 275), based on his work on resilience in career development, he is convinced that, "reflexivity and resilience appear as two faces of the same coin," in the case of autonomous reflexivity.

2.5.4 Hopefulness

In his article aptly titled Hope Theory: Rainbows in the mind, Snyder defines hope as "a positive motivational state that is based on an interactively derived sense of successful (a) agency (goal directed energy), and (b) pathways (planning to meet goals)" (Snyder, 2002: 250). Goals provide the targets for mental sequences (Snyder, 2002), they are the endpoints associated with planned behaviour (Snyder, 1994). High hope people appear to inject a certain amount of uncertainty into their goal pursuits (Snyder, 2002), and do not simply choose 'sure-thing' goals (Snyder, 1994). They set goals of moderate levels of difficulty (called 'stretch goals') based on their own standards that appear to maximise the pathways and agency components of hope more readily (Cheavens et al., 2006). Pathways thoughts reflect a person's perceived capacity to produce cognitive routes to desired goals (Snyder, 1994).

People engage in pathways thinking when they plan out ways to reach their goals (Cheavens et al., 2006). Not all plans come to fruition; hopeful persons produce many such plans in order to circumvent possible obstacles to goal accomplishment (Snyder et al. 2002). Agentic thinking (Snyder et al., 1998) relates to self-referential thoughts with which one can initiate and sustain movement along the chosen pathways towards a goal (Snyder, 2002). Agency thinking takes on a special significance when people encounter impediments as it helps them to channel requisite motivation to the best alternative pathway (Snyder, 2002). Goals, pathways, and agency thinking reciprocally influence one another and thus hope is best understood as an iterative cognitive process composed of agency and pathways thoughts in the service of important goals (Snyder et al., 2002).

Evidence from Archer's interviews suggests that the communicative subjects tend to confine their planning to the immediate future. For instance, quoting from Archer (2007a: 167):

> Alf "lives for today, not tomorrow – taking things as they come"; Sheila says, "I go with what the day brings"; Pauline just "waits for the day and see what I'm going to do that day"; and Jeanette admits: "to be honest, I never really look far ahead, I never do, I think that's part of my problem."

Furthermore, according to Archer (2007a), even those who admit that they confront major problems did not believe that they could design a course of action to circumvent them. In other words, they lack the necessary motivation (or agency) to do so. Where the future is concerned, Archer observes that Olga (a 63 year old migrant to Britain) oscillates between intercessory prayer and superstition and as a teacher she confesses her inability to plan lessons even when under inspection. To use Olga's own words:

> …they asked us to write plans for every lesson – it was the worst thing for me to write it so that somebody could look at your papers. I always came to the classroom without any plan of what I will do today…I would suddenly have an idea in my head and just try to apply it on the spot – sometimes it failed (Archer, 2007a: 167).

These findings illustrate a lack of ability to plan ahead and to take decisive action (agency) in the face of contingencies on the part of the communicative reflexives. Nevertheless the communicatives do seem to pin their hopes on external influences, for instance Jon, with his serious illness, mortgage to pay and recent redundancy, simply hopes that "something will turn up," (*ibid.*, 167). Moira on the other hand sees value in meaningful relationships, she is "drawing hope and strength from meeting more 'like -minded' people" (Clayton, 2015: 117).

Conversely, given the confidence in the self, the evidence suggests that the autonomous reflexives design courses of action to pursue their ultimate concerns under their own terms without the influence of any interlocutors. As Rachel summarises, "None of my family could stand in my way – well, I wouldn't let them anyway. I will do what I want to do" (Archer, 2007a: 201). Their projects (or goals) are more ambitious than those of the communicative reflexives, they aim to get on in life and as such their life-long pursuits tend to activate rather than evade the powers of the social structure. With such projects, planning is important, Archer (2007a: 202) remarks that autonomous reflexives "plan intensively for that which is foreseeable – in tiny brushstrokes for tomorrow and in broad,

bold outline for the months and years ahead." The available evidence speaks of the planning proclivity in autonomous reflexivity with a remarkable consistency, "we see here the interviewee engaging in reflexive deliberation that involves imagining, re-living, planning, and deciding on practical action" (Kahn, 2009: 204). Pathways thinking of the autonomous reflexives is illuminated particularly well in the occupational project of twenty year old team manager (e-banking) Donna. Typical of the practitioners of autonomous mode Donna makes it clear where her interest lies: "Obviously, for me my career comes first…" (Archer, 2007a: 220). In her lifelong pursuit of upward mobility she paints a clear picture of her future ambition and how she intends to achieve it:

> I've got two career paths at the moment: one would be going off and run my own business and the second would be to stay with a large organisation within the financial sector and build on that (2007a: 220).

Alongside planning pathways autonomous reflexives actively seek to improve their qualifications in anticipation of future opportunities, "This is the one that I wanted to do, definitely, just because of what I want to become in years, a manager. And obviously you have to do a Level 4 to be a deputy manager" (Dismore, 2014: 394). Synder (2002) points out that agency thinking is especially significant when people encounter impediments as it helps them to channel the requisite motivation for the best alternative pathway. Ralph's story is one of active agency both in seizing enablements and circumventing constrains in his quest for upward social mobility.

Now 53 and unemployed, upon leaving school Ralph capitalised on the enablements presented in the boom in the automobile manufacturing and sales in the Midlands to land a job with a leading car rental agency. He made the most of their training program and was soon moving up the ranks. However, when he was passed over for an expected promotion Ralph was angry but undismayed. Faced with this contingency Ralph was nevertheless able to design an alternative course of action, "I was confident that I could transfer my skills to another company" (Archer, 2007a: 213). Exercising agentic strategies Ralph secured employment as second in charge in a smaller car rental organisation. In total, in spite of the ensuing havoc in his modus vivendi, Ralph was able to move between ten dealerships without difficulties. This agentic tendency is equally revealing in the plight of some Chilean academics trying to establish their own unique academic identity:

> …Even faced with the very considerable weight of several layers of academic structure – discipline, institution, national policy and global forces – these academics work hard to use the spaces available to them to define their own forms of academic becoming. (Guzmán-Valenzuela & Barnett, 2013: 218).

The whole gamut of hopeful thinking incorporating pathways, agency, and projects shines through in Dismore's (2014: 399) study:

> Rather than allow the structural conditions to prevent her from progressing to higher education, she exercised her agency to project possible futures and planned accordingly. It is a strategy that demonstrates the process of weighing up possible outcomes, associated with rational choice theory and is a characteristic of autonomous reflexivity.

Findings from research conducted with children as well as adults in varying stressful circumstances supply ample empirical evidence to support the role of hope in resilient coping (e.g., Chang & DeSimone, 2001; Greeff & Van Der Merwe, 2004; Ong et al., 2006; Snyder, 2002). While the coping potential of hope is well illustrated, much less has been articulated in regards to its antecedents whereas its development is still not well understood. In terms of triggers, the centrality of contextual discontinuity has been highlighted, for example, Marcel (1965) claims that hope can only be experienced when the temptation to despair exists. Along a similar line of reasoning Erikson and Erikson (1998) are of the view that hope is developed through a positive solution of the psycho-social crisis between trust and mistrust.

More pertinently perhaps, Benzein and Saveman (1998) have identified stressful stimuli, crises such as loss and life threatening situations as antecedents of hope. The role of parenting style is one avenue that has been pursued in the development of hopeful thinking in children. Drawing on Baumrind's (1991) taxonomy, research has found that authoritative parenting appears to be best suited to promote its development (Shorey et al., 2003). However, critics of the traditional hope theory have labelled this stream of research as overly individualistic in its locus (Du & King, 2013), indeed, variability in hopefulness as a function of personal differences has rarely been explored.

An emerging literature that aims at addressing this lack recognises that hope can be construed both as anchored within the person (internal locus), and as anchored on significant others, such as family, friends, and even a supernatural being/s (external locus) (Bernardo, 2010). Du and King (2013) tend to support a positive relationship between internal locus of hope and independent self-construal whereas external locus of hope has

been found to be related to interdependent self-construal. Independent self-construal is defined as the unitary and stable self, emphasising unique traits that are separate from social contexts, whereas interdependent self-construal refers to a flexible and variable self, focussing on external and relational traits (Markus & Kitayama, 1991). Consequently, independent self-construal serves as a reminder of the autonomous reflexive whose internal conversations are completed at a distance from social influences whereas the interdependent self-construal can be associated with the communicative reflexives whose completion of the 'thought and talk' pattern is accomplished inter-subjectively.

Thus, viewing hope in terms of self-construal shines the spot light back on modes of reflexivity. Therefore, the evidence in this study, taken alongside existing evidence in proximal literature, suggests hopeful thinking as transactional between the subject and its environment. In particular, extant literature provides a platform to argue for contextual discontinuity and autonomous reflexivity as constituting the generative mechanisms of hopefulness. Hence hope can be explained in terms of an emerging human psychological strength essential to cope with unfamiliar situations activated by the practice of the autonomous mode of reflexivity.

2.5.5 Optimism

Although hope and optimism are distinct constructs, they are also interrelated, in fact scholars have mulled over whether the two constructs are two sides of the same coin (e.g., Bryant & Cvengros, 2004). Hope and optimism are both concerned with an orientation to successful future expectations. However, optimism is thought to be most relevant within situations that allow for little control whereas hope is thought to be most relevant within situations that allow for high levels of personal control (Gallagher & Lopez, 2009). Optimism has been accentuated as an inherent part of the human nature (e.g., Freud, 1928; Tiger, 1979). Contemporary literature of optimism and pessimism focus on expectancies for the future (Carver et al., 2010). Optimism, viewed in terms of people's expectancies of the future, stems from their characteristic explanatory style of the causes of bad events (Peterson, 2000).

Optimists associate past failures as reflecting external, unstable, and specific causes (Peterson, 2000), the outlook of the future is thus considered brighter as the cause may no longer be present. On the other hand, pessimists associate past failures with internal, stable and global causes (Peterson, 2000) leading to an expectation of more failure in the future (Carver et al., 2010). Studies have found that most people evaluate themselves

positively and that psychologically healthy people in particular showed the positivity bias (Peterson, 2000). Notwithstanding, scholars have warned that optimism can have costs if it is too unrealistic (*ibid.*). Indeed a number of studies have reported positive associations between unrealistic optimism and risky behaviour such as in relation to health risks (Weinstein, 1987), including sexual health (Taylor et al., 1992). Realistic optimism is type of optimism that concerns resilient coping. Realistic optimism is defined as the tendency to maintain a positive outlook within the constraints of available measureable phenomena situated in the social world (Schneider, 2001).

Realistic optimism stresses the importance of keeping the reality in check. The evidence from the primary studies supports optimism as a characteristic of autonomous reflexivity. For instance, according to Archer (2007a: 201) autonomous reflexives are committed to the reality principle, as Donna asserts, "I'm not a dreamer" (*ibid.*, 201). Nick is more articulate in this regard, "I'm not really a day dreamer. I suppose the word's a realist…I think about stuff that's actually going on in my life, but I don't really day dream…" (*ibid.*, 202). They need to keep reality in check because they have broken with the contextual guidelines and can only circumvent the perils of structural contingencies by monitoring their actual circumstances closely. Furthermore, realistic optimism entails discovering controllable aspects of the situation (Schneider, 2001). On this point Archer (2007a: 202) counsels that the task of the autonomous reflexives is to "master the controllable, to minimise the uncontrollable and to live with the unavoidable." As Martin explains:

> I think I'm quite a realistic person; I don't sort of ignore the facts and think, well, that's just going to go away and this is going to happen – that isn't going to be the case. I don't tend to fluff around things. I try to look at what's there, what's real and if I can do something about it – and if some of it is left to chance, then that's how it's going to have to be (*ibid.*, 119).

Indeed, one of Greenbank's autonomous subjects makes it clear what he is not "…I'm not pessimistic, but I always tend to think I could have done something better" (Greenbank, 2010: 67). Berta is an autonomous subject in Tomassini's study who has just quit her job, nonetheless her outlook on the future remains positive, "When interviewed, in the midst of her difficult transition, Berta appeared open to many different options, aware of the many difficulties implicit in the process of initiating a new life, but remaining optimistic" (Tomassini, 2015: 269). Communicative reflexives on the other hand seem to engage somewhat differently with the future. Given their reliance on *similars* and

familiars to complete their 'thought and talk' pattern, their experience to novelty is hugely restricted and as such they take adversely to the unpredictable nature of the future.

Consequently, as in the case of hope, planning if any is necessarily restricted to the immediate and they seem to live on the principle of one day at a time, Archer (2007a: 275) prefers to call them, in this sense, "everyday pragmatists." Terry, a research chemist sums up the communicative reflexives outlook on the future, "…yeah, I'd like to see my future a bit clearer, but I don't have any control over that at the moment – that's the way I see it" (*ibid.*, 167). They are unlikely to pursue opportunities, instead they will rather wait for something to happen as Robbie remarks, "…So if the job comes I'll go for it. But I know in two years that I'll probably want to do something completely different – and I'll wait for that opportunity to come up" (*ibid.*, 171). Schneider (2001) views opportunity seeking behaviour as a cornerstone of realistic optimism. Opportunity-seeking mentality frames constraints as challenges offering potential opportunities rather than problems or chores. Indeed, Tomassini (2015: 268) spares a reflective thought for Berta's career biography, "She now regards herself mainly as a solitary learner who sees every problem as a personal challenge and a chance to increase her skills and professionalism."

Furthermore, an opportunity seeking mentality helps to make the problem-solving process more enjoyable, encourages a mindful learning perspective and consequently produces increased realism rather than encourage illusory thinking or wishful fantasies (Schneider, 2001). Committed as they are to better themselves, the autonomous reflexives display all the hallmarks of opportunity-seeking mentality. This opportunity-seeking mentality is mostly illuminated in their occupational projects. As Oliver explains, it was the lack of opportunity at Inland Revenue that inspired him to enter financial services (Archer, 2007a). Furthermore, as planners they acquire enough knowledge of themselves and of their part of the employment structure allowing them to seek for new openings in their current employment or by moving jobs, as in the case of unemployed sales manager Ralph who managed to move between ten dealerships without difficulty (Archer, 2007a).

Those not in employment are busy planning for a brighter future involving significant social mobility, "I want to live big, do big, not stay in one position and be satisfied, but push myself to greater heights" (Luckett & Luckett, 2009: 479). For his part, Damian has seized every opportunity befalling his way to work himself up in the charity sector following bouts of employment spells in retail and hotel management. He now runs two shops and looking ahead he exposes his bigger ambition:

> In the future, yes, I'd like to have my boss's job. She looks after ten shops, so that's my next phase, that's what – I intend to stay with the charity, in the charity business (Archer, 2007a: 207).

Given their modest project aiming at staying put, communicative reflexives are rather less ambitious and less decisive in their life pursuits, Bovill (2012: 693) observes as follows:

> Very few of the 41 responses gave any specific details of the steps they would need to take to fulfil goals related to long-term career plans. There was no strong sense displayed by students that they had come to university with any formulated plan to move toward career goals and achieve upward social upward mobility. Answers such as 'I may go onto postgraduate study but am not completely sure' display no real understanding of the steps to be taken from year one toward the reality of this outcome.

Indeed all of Archer's communicative reflexives seem oblivious to opportunities for career enhancement often choosing relationships, in most cases family, over occupational promotion. Olga, for instance, turned down the chance to become a head teacher for her concerns about friendship, "…but I thought, I have so many good friends among the other teachers, and when you stand on top, you suddenly lose all these contacts – they wouldn't consider you a friend" (2007a: 177). For Pauline it was concerns about her family that triggered a downward occupational spiral, from quitting as a nursing auxiliary to working as a night care assistant "…But when I had my first son and my dad was looking after my daughter, and I thought I can't leave my dad with two, it's not fair…So, I had a year off and then I went into working nights at care homes" (*ibid.*, 177). In so far as seeking opportunity is concerned, Archer (2007a: 275) describes the communicative reflexives as "people to whom things happen rather than individuals who make things happen."

Viewed from the lens of resilient coping, optimists are believed to cope differently with stressors, experience less negative mood, and may even have more adaptive health behaviours (Segerstrom et al., 1998). There is increasing support for optimism as a psychological resource with the potential to mediate stress and health (Taylor, 2010; Taylor & Stanton, 2007). For instance, the study of the September 11 survivors by Fredrickson et al. (2003) is instructive, supporting a strong relationship between resilience coping and optimism. As observed in the case of hopefulness, Frederickson's study serves as a reminder of the transactive nature of optimism and thus the role of contextual resources. Whilst the positive outcomes of optimism are celebrated widely in the literature, its antecedents or developmental correlates remain in a black box in much

the same fashion as the other psychological resources already discussed. Indeed, research on trait, let alone state, antecedents or causes of optimism is sparse (Cheung et al., 2013).

The limited attempts at uncovering the predictors of optimism have reported mixed results. In the study of children exposed to maltreatment Beals (2010) concluded that optimism was associated with neither positive family environment nor social support. These findings are counterintuitive, previous studies have reported correlational relationship between the positivity of the caregiver and that of the child (e.g., Seligman et al., 1995). Other authors attribute optimism to biology suggesting that people may be predisposed to be optimistic (Sharot, 2011) whereas Cheung et al. (2013) attributes it to nostalgia.

A pertinent line of enquiry in optimism research concerns the relationship between self-construal and optimism. This research stream is more prominent in predicting unrealistic optimism and has reported mixed results. For instance in a cross-cultural study of Canadians and Japanese, Heine et al. (1999) reported that people from cultures representative of an interdependent construal, such as the Japanese, tend to be less unrealistically optimistic than the Canadians representative of cultures characteristic of an independent self. However, on a more individual basis, and contrary to the foregoing, Duncan et al. (2013) found that independence was the best factor in explaining levels of subjective happiness, life satisfaction and optimism. Self-construal is also a self-reflective process, although contradictory these results suggest a plausible relationship between metacognitive processes and the development of optimistic thinking.

Other studies have provided evidence to support self-confidence (Hooda et al., 2009) and hopefulness (Magaletta & Oliver, 1999) as predictors of optimism. Moreover, some authors have additionally hinted at autonomy as a potential antecedent in the development of optimistic thinking in children (e.g., Hasan & Power, 2002). Together, the findings of this review and the emerging literature favour the interplay between autonomous reflexivity and contextual discontinuity as the generative process of realistic optimism. Thus, it may well be the case that optimism has its roots in resilience as Kearns and McArdle (2012: 387) seem to suggest "resilience involves evaluating 'what is' against the hope of 'what could be,' the balance of optimism and realism." On the other hand, although communicative reflexivity is not blessed with the same positive orientation towards the future, there is insufficient evidence to associate this mode with pessimism. Rather, communicative reflexives seem to draw strengths from others as Moira proudly articulates: "I am feeling more optimistic over these past few years because I have met

more like-minded people" (Clayton, 2015: 114), Archer (2007a) is therefore probably right in calling them everyday pragmatists.

Altogether, the findings within and between the chains of inference consistently show the tendency of autonomous reflexivity and positive coping resources to co-habit in a context of discontinuity. It may be the case that the emergence of psychological resilience sets in motion an upward spiral of positivity (Bannink, 2014; Luthans et al., 2011; Ong et al., 2010) which supplies the nutrients necessary for the emergence of self-confidence, hope, and optimism. Each of these resources contributes positively in the psychosocial development of the autonomous human subjects. Resilience supplies the staying power, self-confidence controls the thought processes, hopefulness nurtures the effort to succeed (Luthans et al., 2006b) while optimism helps to maintain a positive outlook (Uusiautti & Määttä, 2014). These resources once stabilised seem to be enduring helping the autonomous reflexives navigate the increasingly dynamic and complex socio-occupational landscape towards fulfilling their expansionist ambitions.

2.5.6 Psychological Capital

The findings discussed above illuminate the psychological mechanisms of autonomous reflexivity. Relying on the coping literature as an overarching theoretical umbrella the analysis of the qualitative studies, combined with the wealth of information in Archer's seminal work on internal conversation, constitute the support system for the general hypothesis that autonomous reflexivity is related to coping resources namely resilience, self-confidence/efficacy, hopefulness and optimism. In this light, the evidence also speaks to contextual discontinuity rather than continuity as resource-strong. In other words, the experience of contextual discontinuity carries with it a motivational propensity for self-actualisation.

Contextual discontinuity is likely to result in discontinuity in relationships (Kontos, 1992) throwing individuals back upon their own resources where survival is incumbent on them completing their lone internal conversations in order to access resilient coping resources. Drawing on Layder (2004; 2006) theory of social domains, Gillberg and Bergman (2015: 10) argue in favour of "an unambiguous link between the reflexive patterns of young people and the resources generated within the various social domains". In fact to them, the same social settings that produce resources in the form of self-confidence serve as factors that strengthen autonomous reflexive patterns. The evidence presented in this work so far goes further to show with a relatively high degree of consistency that a social

domain characterised by contextual discontinuity supports the development of multiple positive resources.

What can be read as another emergent finding concerns the durability of emergent resources. Once manifested, these resources seem to persist into adulthood with most of the autonomous interviewees displaying these characteristics in relation to their career biography. This may be because, as explained by Bandura (2001), the social influences operating in selected environments continue to promote certain competencies, values and interests, long after the decisional determinant has rendered its inaugurating effect. Indeed, resources linked to an individual's developmental history (or psychobiographical domain) are believed to connect with his/her ability to develop successful strategies for succeeding in the labour market (Gillberg & Bergman, 2015). For instance, "the apparent confidence and motivation engrained in Tony Blair's psyche, likely resultant from his turbulent childhood and performance experience, led him to electoral victory" (Blumberg & Li, 2014: 35) in his first prime ministerial campaign having lost in his bid to secure a seat in the House of Commons the previous year.

In this thesis the primary interest lies more precisely in examining the impact of an autonomous reflexivity intervention within the confines of the workplace. The role of psychological resources in the workplace is best illuminated in the positive organisational scholarship. In the emerging field of positive organisational behaviour (POB), resilience and self-confidence/efficacy alongside hope and optimism have been paralleled to positive psychological resources with marked agential potential. The emergence of these resources have been traced to an overall latent factor scholars have termed psychological capital or PsyCap for short. Support for this theoretical elaboration is furnished by Hobfoll (2002). Psychological resources theory posits that some psychological constructs are best understood as representing a core, underlying construct (Avey et al., 2009) which is evident in each capacity (Avey et al., 2006). The common underlying link that runs between the capacities and ties them together is a mechanism shared across each facet that contributes to a motivational propensity to accomplish tasks and goals (Luthans et al., 2007) and succeed (Avey et al., 2010a). The definition of PsyCap reflects its multifaceted nature:

> An individual's positive state of development and is characterised by: (1) having confidence (self-efficacy) to take on and put in the necessary effort to succeed at challenging tasks; (2) making a positive attribution (optimism) about succeeding now and in the future; (3) persevering towards goals and, when necessary

> redirecting paths to goals (hope) in order to succeed; and (4) when beset by problems and adversity, sustaining and bouncing back and even beyond (resilience) to attain success (Luthans et al., 2006c: 3).

The concept of PsyCap continues to attract a great many interests from both academics and practitioners and it has been linked to employee attitudes, behaviours and performance at different levels of analysis (Newman et al., 2014). A recent meta-analysis by Avey et al. (2011) found a sizeable number of empirical studies which yielded significant predictive validity of PsyCap in individual outcomes. Yet, studies addressing the nature of the concept, its measurement, the factors that influence its development, and when and how it influences individual-level outcomes (Newman et al., 2014) are scarce. In other words, few have considered what is 'to the left' of PsyCap (i.e., the antecedents in a theoretical model) (Luthans & Avolio, 2014).

Furthermore, the majority of extant empirical work on antecedents focus on contextual factors such as supportive organisational climate (Luthans et al., 2008c), stressful working environment (Liu et al., 2012), and transformational and authentic leadership (Gooty et al., 2009; McMurray et al., 2010; Rego et al., 2012; Woolley et al., 2011). The only known study to date with a focus on individual differences is offered by Avey (2014). Avey found individual differences measured as proactive personality and self-esteem accounted for a larger share of the variance in PsyCap in relation to leadership and job characteristics.

In addition to the predictive validity of these antecedents, the findings also suggest "not only that PsyCap is a multidimensional construct but also that it is a multiestablished construct" (Avey, 2014: 146), that is, a construct established first in multiple other domains (Luthans & Avolio, 2014). The multiestablished nature of PsyCap therefore speaks to the idea that personal resources need to be understood in terms of an individual's psychobiographical domain. The psychobiographical domain comprises the structural conditions of personal identity and the ability of individuals to manage feelings (Gillberg & Bergman, 2015). In other words, the domain of psychobiography concerns personal experience (Carter & Sealey, 2000). This thesis takes the position that personal experiences are mediated by reflexivity, "it is agential reflexivity which actively mediates between our structurally shaped circumstances and what we deliberately make of them" (Archer, 2007b: 27). The fact that each individual's psychobiographical domain will be heterogeneously populated signifies that personal resources are idiosyncratic in nature.

Indeed, the preceding analysis of Archer's autonomous and communicative reflexives supports the notion that individuals who complete their internal conversation alone tend to have access to positive psychological resources to a greater extent than those who complete their internal conversation inter-subjectively. On this basis, modes of internal conversation can be argued to hold potential explanatory power in regards the heterogeneity in PsyCap between individuals. Furthermore, an important qualifier of PsyCap is that it should have a positive impact on work-related individual-level performance and satisfaction. This indicates the relevance of PsyCap to the performative order which parallels that of autonomous reflexivity. Altogether, the weight of evidence supports the candidature of autonomous reflexivity as a predictor of PsyCap. Therefore, the ideas of psychobiography, internal conversation and the multiestablished nature of PsyCap mutually support autonomous reflexivity as an important interpersonal antecedent in the development of psychological capital resources. It is indeed fitting that this should be the case, after all, like internal conversation PsyCap is a celebration of "who you are" (Luthans et al., 2004).

One of the cited benefits of the realist review is the flexibility it affords the theory building process. It promotes an active and ongoing engagement with the data throughout the review process so that initial ideas or theories can be affirmed, refuted or refined as necessary. Wong et al. (2010) believe that this progressive focussing helps to sharpen the focus of the inquiry. In keeping with the spirit of progressive focussing, and with all the evidence and the theoretical abstraction considered, the original mechanisms of the initial MRT can now be updated and new hypotheses put forward as candidates for further testing. The findings of the review, together with further theoretical elaboration suggest that an autonomous reflexivity intervention in the workplace will be associated with employees' wellbeing. More specifically, it is hypothesised that the following demi-regularities may be revealed in the workplace in relation to an autonomous reflexivity intervention:

H_1: Autonomous reflexivity will tend to be associated with resilience;
H_2: Autonomous reflexivity will tend to be associated with self-confidence/efficacy;
H_3: Autonomous reflexivity will tend to be associated with hopefulness;
H_4: Autonomous reflexivity will tend to be associated with optimism;
H_5: Autonomous reflexivity will tend to be associated with positive PsyCap.

Figure 3 summarises the relationship between autonomous reflexivity and the resources that comprise psychological capital.

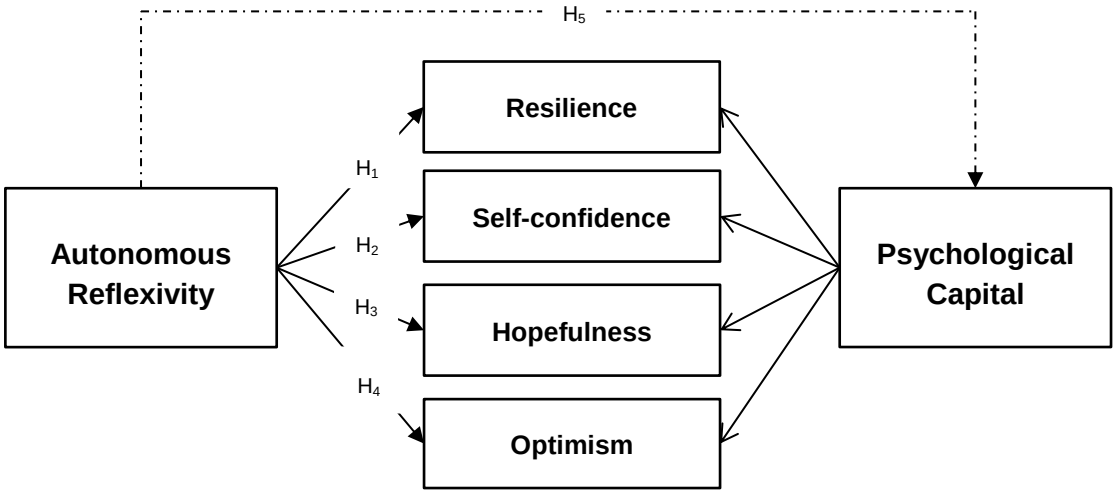

Figure 3: Theoretical Model 1 – Linking AR with Psychological Resources

2.5.7 Autonomous Reflexivity, PsyCap and Outcomes

The psychological profiling has revealed that the autonomous reflexives are individuals identified by their abundant possession of positive psychological resources. These psychological strengths once emerged are enduring and are at hand in guiding their internal deliberations. In this section the focus shifts to the usefulness of autonomous reflexivity in the work domain. Particularly, it seeks to understand the likely behavioural and attitudinal tendencies (outcomes) associated with an autonomous reflexivity intervention in the workplace. This is a potentially crucial prerequisite if the notion of internal conversation is to inform management practice in any meaningful way.

The previous section concluded in abstracting PsyCap as the mechanism through which autonomous reflexivity potentially operates, examining the behavioural and attitudinal dynamics of autonomous reflexivity benefits from this understanding. Unlike the notion of internal conversation, PsyCap is now a well-established concept in mainstream organisational behaviour literature. A growing number of studies predominantly examine the relationship between positive PsyCap and individual level outcomes in organisational settings. Reporting in this section takes on an iterative approach, oscillating between qualitative evidence gathered from the studies analysed, theoretical abstraction, and quantitative evidence from the PsyCap literature, but not necessarily in this order. The aim is to present the findings as a running commentary, clearly linking theory with

evidence in a mutually supportive fashion. The section concludes by proposing a set of hypotheses for further testing in the quantitative part of this study.

2.5.8 Performance

According to Archer (2007a), because of their aloneness during childhood the autonomous reflexives engage in activities that require little or no social interaction. Through this she believes they learn the discipline of practice, entailing and engraining self-monitoring as intrinsic to task achievement. However, the lone mastery of practical skills is not a given, speaking about the difficulties involved to fully master how to play a musical instrument, McPherson and McCormick (2006) accentuate the need for young learners to be resilient as well as persistent. Based on the findings presented above it can be argued that the young autonomous reflexives may be predisposed with such qualities. Because of the enduring nature of psychological resources, those successful at establishing sustainable practices in the occupational context exact the same values and standards acquired from their home aloneness in discharging their work responsibilities.

The results of the thematic analysis speak to the high performative standard expected of autonomous reflexivity, "I want to be a successful architect. I don't believe in mediocrity" (Luckett & Luckett, 2009: 479). Indeed, "Cliff prided himself on his research and preparation for negotiations with an attention to detail" (Dyke et al., 2012: 845). In fact, some autonomous reflexives are particularly perturbed about falling short of their own high standards as in Jonathan's case, "At times, I have said I am my own worst enemy due to my striving for a level of quality that I must always achieve, and if I haven't quite reached it I think that . . . this is not quite good enough . . ." (Gillberg & Bergman, 2015: 8).

The autonomous reflexives already on a career path are characterised by "a strong ethos and value placed on hard work" (Dyke et al., 2012: 838), as Clayton (2015: 124) observes in the case of one of her hardworking autonomous subjects, "Vivienne accepts this identity, which fits with her sense of a core autonomous reflexive self, grounded in a working class work ethic." Richard, a lecturer in Roed's (2012) research, described as single-minded and driven with a very strong work-ethic, and who accepts long working hours as part of academic life, seems to epitomise what autonomous reflexivity stands for. High quality performance and hard work are often duly rewarded as in the case of Rachel who excelled at her hairdressing apprenticeship, "When I was in my first year I won a competition for hairdressing and again when I was in my second year and I was only

training then! It was like I've done something and I'm the best" (Archer, 2007a: 205). As for Donna, the reward for her good performance is reflected in her swift progression through the NVQs. Furthermore, "in the three years she has been with her current employer she has been promoted annually: from customer service agent, to team co-ordinator and then to team manager" (*ibid*., 207).

Damian, the charity shop manager, his excellent performance was rewarded with an offer to run a second shop after a year in post (*ibid.*, 207). For his part, Oliver started out as a novice "selling insurance and dealing with personal claims and gradually advanced to personal taxation planner, to being a financial consultant who now wins national awards for his performance" (*ibid*., 208). Perhaps a more pertinent example of hard work ethos can be gleaned in Claire Palley's lone pursuit of academic publications which eventually contributed to her appointment as the first female Law Professor in the United Kingdom. As regards communicative reflexivity, the evidence reveals their hard-working ethos. However, this is not for self-improvement and personal career advancement, but rather to providing a good life for their family as illustrative in Ray's case in Cieslik (2006) study.

Comparing these findings to the empirical findings in the PsyCap literature, Luthans et al., (2007) found PsyCap to have a strong relationship with employees' performance. Indeed, performance outcomes as the outworks of PsyCap have received considerable attention since positivity began to make inroads in organisational studies. In a study of employees in the financial services industry Avey et al. (2010b) also found a positive relationship between PsyCap and both financial and manager-rated performance. Similarly, Peterson et al. (2011) concluded that employee PsyCap was positively related to both supervisor-rated performance and their financial performance. These findings appear to be consistent across a number of cultures such as Vietnam (Nguyen & Nguyen, 2012) and China (Luthans et al., 2008a).

The superior performance of individuals high in PsyCap has been attributed to them having access to broader and more impactful resources resulting from the combination of the unique and common motivational processes of each facet that enables performance (Luthans et al., 2007). As Blustein et al. (1995: 426) put it, "those work behaviours that foster the development of personal competence involve many of the same sets of dynamics that are inherent in our early strivings for mastery over our environment." Thus, emulating Bandura's (2001) dynamics between metacognition and self-efficacy, it may therefore be argued that the positive psychological resources associated with PsyCap

operate in the intervening space between lone conversation and action. In other words, PsyCap provides the nutrients to autonomous reflexivity supportive of performative achievements.

2.5.9 Job Satisfaction

In the PsyCap literature job performance and satisfaction are treated as almost two peas in a pod. Alongside job performance, satisfaction is often considered as a variable in the nomological network of PsyCap (e.g., Luthans et al., 2007). It is believed that the positive psychological states associated with PsyCap motivate individuals to exert greater effort and perform well in their job which in turn enhance their satisfaction (Newman et al., 2014). The link between PsyCap and satisfaction is indeed evident in a large number of empirical works (Avey et al., 2010b; Luthans et al., 2007). The evidence from the realist review points to satisfaction at work as almost a Holy Grail for autonomous reflexivity, Donna makes it perfectly clear, "I've got to have job satisfaction, it's got to be somewhere I know I can develop in…" (Archer, 2007a: 221).

Work appears to be motivational in its own right, thus, "the concern with work is not with ambition, but with intrinsic satisfaction" (Cownie, 2015: 139). Importantly, the autonomous reflexives want to feel at home in their jobs as Gabriel accentuates, "The job is such a large part of one's life that it must be enjoyable. There is no way for me to have a job I am not passionate about" (Gillberg & Bergman, 2015: 7). When the autonomous reflexives speak about enjoying their jobs it also implies a degree of challenge. In fact, the findings show challenging work as a source of satisfaction while a lack thereof often leads to frustration, as Berta explains, "At the end, I found myself in a situation that was not challenging anymore. And I quit" (Tomassini, 2015: 269). Whereas the autonomous reflexives find work as a means of self-actualisation and thus derive satisfaction from it the evidence tends to suggest the communicatives:

> …Perceived the possibility of getting an interesting job as a utopian fantasy. They believed that having a house, a family and children was a more realistic dream and that the possibility of self-realisation resides in this family domain (Gillberg & Bergman, 2015: 8).

Remarkably, the findings show that for the autonomous subjects, satisfaction is often accompanied with high productivity paralleled by an equally high performative quality, for example, as in the case of Claire Palley (Cownie, 2015). The findings thus suggest, with Archer (2007a), that the achievement of virtuosity in practical skills to carry out a

work role is a source of enjoyment for the autonomous subjects; the same cannot be iterated for the communicatives. It may well be the case that a positive reinforcement loop engages between deriving satisfaction from performing well in the job role and intensified efforts to become proficient at it (*ibid.*), a point equally made by the positive organisational theorists.

2.5.10 Innovative Behaviour

The findings of the review provide resounding evidence to support the various forms of innovative behaviours associated with autonomous reflexivity. For instance, Delbridge and Edwards (2013) study of super yacht designers exposes autonomous designers as more innovative and creative compared to their communicative counterparts. Indeed, the planning capacity of the communicatives in the working arena "reveals an absence of innovation…."(Romano, 2009: 159). According to Yoo (2013: 4), "autonomous reflexives enable social actors to bring together elements previously unconnected and develop a novel way of combining elements previously unassociated." Mutch's (2007) historical analysis of Sir Andrew Walker's significant innovation in the managerial practice of Victorian Britain is an illustrative case. Mutch's analysis reveals how disparate elements, such as ambiguous regulations, a Scottish background, knowledge of organisational practice in the coal industry, and aspects of the built environment may have helped shaped Andrew's innovation.

Innovative behaviour has also been described by Mahemba and Bruijn (2003: 163) as "having an appropriate outlook on obstacles, and treating these obstacles as learning opportunities rather than as negative events." The studies analysed are rich with examples illustrating the autonomous reflexives' strategic stance towards structural constraints. Aleem for instance is an ex-convict:

> He recognises that his criminal record might be a problem but plans a portfolio career as a way of circumventing it….His orientation to the present and future is one of autonomous reflexivity and a determination to be upwardly mobile and do well (Stevenson & Clegg, 2012: 24).

Innovative behaviour has also been paralleled to a process of knowledge management that involves recognising a problem, creating solutions for the problem, and creating support for the solutions (Subramaniam & Youndt, 2005; Xerri et al., 2009):

> Well if I see, for an example, unresponsive students, or if I see that I try to teach something in a certain way and it doesn't work and students come back and say 'I

> didn't really get that.' That is something that prompts me into seeing whether I can adopt an alternative strategy. Like you know setting a little work task or working in small groups, rather than working in an open tutorial or something of that sort. Then from there I try to see other strategies. What is there available? What are the alternative things that can be done? (Kahn, 2009: 204).

Furthermore, innovative behaviour is inextricably linked with entrepreneurial identity (Down & Reveley, 2004) or simply entrepreneurship. Indeed, it has been suggested that the prototypical entrepreneur is characterised by innovative behaviour (Carland et al., 1984; Hoang & Gimeno, 2005). According to Shane and Venkataraman (2000: 217), "entrepreneurship is concerned with the discovery and exploitation of profitable opportunities." In fact, the strategic stance of the autonomous reflexives is not limited to constraints; they also seek to take advantage of new opportunities. Archer notes that "these are subjects who, above all, busy themselves in adding to their qualifications, supplementing their skills, plugging their gaps and generally ensuring they have the right piece of paper or satisfactory curriculum vitae for the next stage" (2007a: 293).

For example, in the work by Simpson and Cieslik (2007), Heather features as a factory worker who harbours the ambition to work as a care assistant in a nursing home. However, Heather's occupational project is constrained by her learning difficulties and poor basic skills. However, her disadvantageous position did not stop her returning to formal education after several years away in an attempt to develop further one or more of her basic skills, "I'm thinking, oh well I need better employment so I need to get qualifications to get me employment" (*ibid*., 407). The case of Richard, a 39 year old ex-army officer employed in a government organisation, is also instructive. Richard sees himself working for a big electronic company in the Silicon Glen in the future. Unlike Heather with the odds stacked against her, in order to fulfil his ambition Richard has made the most of the structural enablements provided by the Army:

> Previously, he had completed a BTEC national diploma as part of his apprenticeship in the Army. As soon as he could, he left the Army and moved to Scotland where he completed two HNC qualifications. Then he moved to the south of England where he completed a Foundation degree at a post-1992 institution. When interviewed, he was progressing from a Foundation degree to a BSc in electronic engineering at the same university (Dismore, 2014).

From a psychological resources' lens, Luthans et al. (2011) argue that PsyCap and its constituent positive resources are likely to be related to innovation. They believe that the agentic capacity, indexed in hopeful thinking for instance, offers a broader range of

pathways which can be particularly relevant for innovatively developing a wider range of higher quality solutions when faced with obstacles. It has also been suggested that individuals with a strong internal locus of control (optimism) tend to see opportunities to improve their skills base and have the confidence to try new techniques (Gist et al., 1989). Extant empirical works do indeed link positive PsyCap with innovation at the individual level (e.g., Babalola, 2009; Luthans et al., 2011; Walumbwa et al., 2011) as well as with creative performance (e.g., Rego et al., 2012; Sweetman et al., 2011) in the workplace. All the evidence taken together makes for a strong case connecting autonomous reflexivity with innovative behaviour.

2.5.11 Relationship with Change

The notions of entrepreneurial identity and innovative behaviour respectively are intricately and variously linked with the notion of change or transformation. The findings illuminate different patterns of association between autonomous reflexivity and change. According to Archer (2007c), in seeking to avoid society's *snakes* and ride up its *ladders* the autonomous reflexives tend to augment the contextual discontinuity which went into their own making. In simple terms, this suggests that although their reflexivity is not practised towards society (Romano, 2009), the choices and intentions of the autonomous actors become highly consequential and the possibility of structural change arises (Maccarini, 2013).

In his analysis of Andrew Walker's entrepreneurial endeavours, Mutch (2007) documents the important change in the management of public houses brought about by Walker's innovations. Likewise, speaking about Claire Palley's tenure as Chair of the Law Board at Kent University, Cownie (2015: 144) observes that, "By the time she left Kent in 1984, to become Principle of St Anne's College, Oxford, Claire felt that they had implemented some changes." Archer (2007a) also reasons that when the skills of the autonomous reflexives are becoming devalued they embrace change fast enough to have time for corrective manoeuvres before others catch up. This point is also revealed in Tomassini's (2015: 268) reflection on the transformative influences in Lucia's self-identity:

> When the economic crisis hit the fashion sector and her company, she was quick to transform herself into an external consultant and at the same time she found a job as a teacher, in the same school in which she gained her own training.

This observation arguably highlights the notion of what Archer (1995) has called double morphogenesis which signifies the transformation of agency as structural relations are

transformed. In the main, the findings suggest that the autonomous reflexives are people who are open to the effects of change. Employees' attitude and behaviour towards organisational change attract considerable research attention. Not only are employees expected to effectively cope with new working conditions on a regular basis, they are also expected to always be ready to move in order to stay employed (Larson & Luthans, 2006). A number of empirical works in the PsyCap literature lend support to the positive role of PsyCap in facilitating positive organisational change (e.g., Avey et al., 2008; Saruhan, 2013). It is believed that positive PsyCap generates positive emotions (Fredrickson, 1998) which help employees cope with organisational change by broadening the options they perceive, maintaining an open approach to problem solving, and supplying energy for adjusting their behaviours to new work conditions (Baumeister et al., 2006).

According to Luckett and Luckett (2009), the autonomous subjects become agents of change because they learn to read society better than the communicatives, and how to exploit the opportunities offered by social structures as variously discussed above. Far from exploiting opportunities, the findings reveal a somewhat different pattern of relationship between the communicatives and change. For instance, in order to reconstruct and maintain that micro-world, also in the working sphere, which allows for the exercise of their reflexivity, Romano (2009) observes that the communicatives desire an activity which does not damage but actually reinforces and improves their set of interpersonal relationships. They prefer professional development in their chosen field rather than managerial roles probably because the latter would threaten their established *modus vivendi*. For them, change is meaningful only when it strengthens the relational aspect of the workplace, in other words, change is valued when it leads to greater stability. For instance, Moira is critical of the male dominated research culture in academia expressing support for change towards a more collaborative and participative approach to research (Clayton, 2015).

Drawing on the qualitative evidence in this review, the outcomes of an autonomous reflexivity intervention in the workplace have been revealed. These positive individual level organisational outcomes are also reflected in the empirical PsyCap studies suggesting both autonomous reflexivity and positive PsyCap as their predictors or antecedents. However, PsyCap has also been established as the mechanism through which autonomous reflexivity operates, in other words, the effect of autonomous reflexivity on outcomes can be said to be mediated by positive PsyCap. Furthermore, work also appears to be motivational in its own right for autonomous reflexivity. Thus, combining the

mechanism and outcomes of autonomous reflexivity, the following demi-regularities are being proposed as candidates for further statistical scrutiny.

H_{6a}: Autonomous reflexivity will tend to be associated with task performance.

H_{6b}: PsyCap will tend to be associated with task performance.

H_{6c}: The effect of autonomous reflexivity on task performance will be mediated by PsyCap.

H_{7a}: The autonomous mode of reflexivity will tend to be positively associated with job satisfaction.

H_{7b}: PsyCap will tend to be positively associated with job satisfaction.

H_{7c}: The effect of autonomous reflexivity on job satisfaction will be mediated by PsyCap.

H_{8a}: Autonomous reflexivity will tend to be positively associated with innovative behaviour.

H_{8b}: PsyCap will tend to be positively associated with innovative behaviour.

H_{8c}: The effect of autonomous reflexivity on innovative behaviour will be mediated by PsyCap.

H_{9a}: Autonomous reflexivity will tend to be positively associated with a positive attitude towards organisational change.

H_{9b}: PsyCap will tend to be positively associated with a positive attitude towards organisational change.

H_{9c}: The effect of autonomous reflexivity on positive change attitude will be mediated by PsyCap.

H_{10}: Autonomous reflexivity will show a tendency to valuing work or career.

2.5.12 Organisational Context for Autonomous Reflexivity

This section reports on the relationship between autonomous reflexivity and context. In the main, the data exposed three different patterns of interplay. Firstly, the evidence suggests that autonomous actors pursue work features that can be described as organisational contextual discontinuity or OCD for short. In the second instance the experience of OCD seems to encourage the practice of autonomous reflexivity in the workplace. And as discussed above and in the context of double morphogenesis, autonomous reflexivity promotes emancipatory action potentially leading to structural transformation thus increasing OCD. Generally speaking, the findings provide initial

evidence to support the hypothesis that OCD and autonomous reflexivity cohabit in a mutually supportive relationship in the workplace.

Reading from Archer (2007a), the autonomous reflexives are believed to have a desire for autonomy (and control) at work. This starting position acknowledges the autonomous reflexives as individuals who know what they want and pursue projects they consider congruent with their interests. This means that a consideration of the role of individuals in selecting a work context assessed as consistent with their own values potentially supplies a rich understanding of their occupational dynamics. The attraction-selection-attrition (ASA) (Schneider, 1987) model which suggests that people and organisations are attracted to one another based on their similarity (Cable & Judge, 1997) provides a useful framework for this task and is retained as a theoretical support in presenting the findings.

The ASA model recognises that people are not randomly assigned to organisations – they actively choose the organisations to which they wish to belong and for whom they wish to work (Kristof, 1996). It suggests that people are attracted to (and therefore attempt to join) organisations in which they believe they would fit (Judge & Cable, 1997). As Dickson et al. (2001) remark, the 'Attraction' process entails a subjective assessment of the degree to which one's values and personality would mesh well with the values and tasks of the organisation which determines whether or not a person chooses to apply, and accept an offer from, a given organisation. Indeed, Billy's retrospection is salient:

> …My friend who was an electrician was lucky because the firm he went for were doing apprenticeship at the time. I suppose I could have gone there and push there – whereas I was silly and went for the job that I wanted to do and liked doing at the time…I think most of jobs I've done have been what I've been interested in because you wouldn't go for the job if you weren't (Archer, 2007a: 209).

Although not made explicit, the *attraction* process of the ASA model does provide some powerful hints as to the centrality of self-reflective processes in pursuing occupational projects. As meticulous planners as they are, the autonomous reflexives are expected to survey the occupational landscape in search for positions they believe would fit their need for autonomy and control. In as much as possible "they will seek out jobs whose duties allow them to exercise their own responsibility" (*ibid.*, 291). The search for attractive positions remains subjective and potentially fallible, but however, what this means is that there is an assumption of objective organisational features with particular pre-existing conditioning properties that will be appraised as attractive. Autonomous reflexives who

do join an organisation will occupy one such pre-existing position and through their inner deliberations will continue to, in a subjective manner, monitor the fit between their own values and personality with the objective organisational features.

In particular, the findings reveal the tendency of the autonomous reflexives to seek out challenging work, novelty, variety and flexibility. For example, one of Bovill's autonomous subjects wanted to move into different educational settings to increase her range of experience, "She understands that the PGCE programme is often more transferable if she moves location, and would also like to meet new students and take on new challenges" (Bovill, 2012: 695). Commensurate with Archer's (2007a) observation, the findings of the review also speak to the desire of these subjects to be in control and autonomous, and thereby, to be able to determine their own work situation. According to Gillberg and Bergman (2015), they fear stagnation or being limited by others. Daniel describes this concept in the following manner:

> It should be fun . . . It should be creative . . . It should be somewhat free . . . It should be changeable . . . I shouldn't need to have the same routine for five years . . . or even for two years. Somehow. . . I shouldn't feel tied down or stuck either . . . limited in any way . . . (*ibid*., 5)

Monotonous and routinized employment breeds boredom for the autonomous reflexives reflecting the primary reasons of poor fit for them. In such instances they are likely to leave the organisation to find a work environment where the fit would be better (Dickson et al., 2001), this then would be *Attrition*. Archer's eloquent observation is pertinent, "since boredom deriving from lack of performative fulfilment is their collective bête noire, young autonomous reflexives are soon casting about for a more satisfying outlet" (Archer, 2007a: 289). Oliver's reflection thus speaks to attrition, "I drifted into the Inland Revenue really and I suppose it was the comfort zone…As I developed as a person I felt a bit trapped really within it…It was very much a lack of opportunity there" (*ibid.*, 208). Oliver ultimately left the Inland Revenue to enter the financial services, working semi-independently in south London.

By applying the ASA model to the evidence from the primary studies analysed it can therefore be concluded that autonomous individuals will seek out for occupational positions they believe will afford them considerable purchase in how to discharge their job roles, in other words, they pursue organisational contextual discontinuity. Thus, as Archer (2003) observes, while the autonomous reflexives usually experience contextual

discontinuity, they also actively court it. In essence, the findings suggest that autonomous reflexivity will try to influence the conditioning effect of structure by proactively seeking out to remain at a distance rather than being embedded within it "like an outsider player in a game" (Tomassini, 2015: 269), as Berta explains, "Since I was not integrated in that culture [of the furniture company], it was easier for me to suggest solutions … I was free from any influences…" (*ibid.*, 269).

Structural conditioning is not quintessentially just flirtatious in nature. The findings also reveal a less romantic side of structural conditioning particularly made visible by Delbridge and his colleague. The authors utilised insights from stratified ontology and analytical dualism to examine how structural conditioning shapes the agency and personal processes of reflexivity possible to individuals within their relevant historical and organisational contexts. The study was set in the super yacht building sector and against a theoretical backdrop of organisational complexity. The business of super yachts building sits within a constellation of multiple institutional logics indexed in, for example, professional and market scripts or narratives (Fincham & Forbes, 2015), as well as rules and norms (Delbridge & Edwards, 2013) shaping practice in the field. In spite of the industry-wide moulding effects of these 'cultural logics' (Herepath, 2014; Kraatz & Block, 2008), Delbridge and his colleague found that the effects were not equally felt by all actors. They observed that the heterogeneity in the structural conditioning of the field was due to different project arrangements and actor positions.

On the one hand, the in-house projects undertaken by the shipyard's own design teams were driven by standardised features with profit maximisation in the foreground. The shipyard's designers involved in these projects were strongly conditioned by commercial criteria and the bureaucratic structures of their organisations. On the other hand, the independent designers mostly operated through custom builds. They were contracted by the client and not the shipyard, as a result, the independent designers were more likely to exercise their professional interests rather than succumb to the commercial whims of the shipyard. Furthermore, the institutional biographies of the independent designers revealed their exposure to design ideas were not restricted to the 'creative' limits of the shipyard. Thus, although both sets of designers exercised reflexivity, the independent designers are believed to experience contextual discontinuity indexed in the features of the projects they engaged in, which normally involved unique collaborations with a wide variety of actors in diverse social settings. The discontinuity imbued in their contextual experience

meant they could think about design ideas away from existing arrangements (Edwards & Meliou, 2015) thus fostering autonomous reflexivity.

In view of the limited scope for change, the authors argue that the internal conversation of the shipyard's designers was more likely to confirm pre-existing relations and arrangements that create limitations in what they imagine is possible. As such they sought to maintain continuity of existing arrangements reflecting the communicative mode. The point being stressed here is that there is evidence to suggest that on the one hand autonomous reflexivity will pursue occupational positions evaluated as supportive of its need for self-actualisation through performative self-expression. On the other, because reflexive predispositions are not static (Davidson, 2012), there is evidence to support the argument that with institutional complexity for instance, comes the seeds for contextual discontinuity and incongruity where individuals are forced to reflexively monitor situations 'at distance' as they decide between different social orders (Edwards & Meliou, 2015).

Moreover, Dyke et al. (2012: 833) argue that "the modes of reflexivity should not be seen as fixed traits of the individual but as an approach that people can adopt in different situations and context; approaches that change across time and place." In this light, particularly illuminating is the prospect that reflexive modes may be variously shaped as a function of heterogeneous organisational arrangements. This leads to the proposition that organisational context can more or less influence the conditions propitious for the development of lone internal conversation. In fact, Dyke et al. (2012: 844) attempt to make a similar point in their analysis of John Steers' passion for both formal and informal learning in the following way:

> Being mostly self-taught and expansive in his learning, he would appear to fit a profile of autonomous reflexivity… The culture of the workplace values learning and the organisation of the working week had the consequence of creating space for outside interests and projects; his informal learning and work experience has given him the confidence to participate. In this sense, the working culture supported the extension of his boundaries of possibilities.

Altogether, the evidence presented hints at the nested nature of action embedded in the complex interplays between cultural logics, contexts and individual properties. However, perhaps of greater significance is that the findings suggest that the relationship between contextual discontinuity and autonomous reflexivity appears to be mutually supportive. Mutually supportive in the sense that while autonomous reflexivity courts discontinuous

experience, the reverse suggests that an institutional biography characterised by a history of discordant and punctuated contextual exposures helps to shape lone internal conversation. Furthermore, as discussed above, because of the transformatory nature of their projects (Archer, 2007a), the autonomous reflexives are likely to be aware of the constraints and enablements that existing work structures afford, and to seek to work with and change these to suit their own requirements (Mutch, 2007).

In essence, what is being argued here is that organisational tenure of the autonomous reflexives will probably reflect the extent to which they come to experience discontinuity in the workplace. For instance, Archer (2007a) observes that a large percentage of her autonomous interviewees had managed to achieve managerial positions and relatively early in their career. *Ceteris paribus*, progression up the organisational hierarchy may be translated as sowing the seeds for greater autonomy and control, effectively suggesting a mutual organisational cohabitation between autonomous reflexivity and contextual discontinuity. All the evidence together with theoretical elaborations suggest that autonomous reflexivity not only courts and is conditioned by contextual discontinuity, it additionally strategically seeks to promote it. Overall, the findings seem to advocate the following demi-regularity:

H_{11}: In the organisational domain autonomous reflexivity and the experience of contextual discontinuity will exert influence on each other such that they will tend to exist in a reciprocal relationship.

2.5.13 CMO Configurations: Linking PsyCap, OCD, and Outworks

After categorising and thus making sense of the primary data, a realist review seeks to examine the link between these findings and the middle range theory it sets out to examine. So far the findings presented have addressed the components of the CMO in a more or less mutually exclusive manner, in other words, the findings have largely focussed on the connection between the intervention and the chains of inference within each of the CMO components. Thus, in this section the findings are coalesced to present evidence linking autonomous reflexivity across the chains of inference, in other words, it involves looking at chains of inference at the theory rather than just the sub-theory level as suggested in Rycroft-Malone et al. (2012). This section therefore makes sense of the findings within the overall context of the middle range theory established a priori. First a brief summary of the findings is reiterated.

By relying on the coping literature the connection between autonomous reflexivity and the four facets of PsyCap has been established. It has also been shown that both the practice of autonomous reflexivity and PsyCap are predictors of positive organisational behaviours, and the mediating effect of PsyCap on autonomous reflexivity in relation to those outcomes has been hypothesised. The evidence presented in the last section foregrounds what contextual discontinuity might look like in the workplace. In addition, the nature of the interplay between context and reflexivity has been established. By bringing together a variety of theoretical ideas, OCD accentuates a situational logic for positive organisational outcomes. However, this is not to imply a relationship of the deterministic type. OCD is rather a reflection of action possibilities, as Luckett and Luckett (2009) assert, it predisposes agents to act in innovative ways (amongst others) and provides normative reasons for justification of their actions, selected from the given stock of ideas and discourses. In other words, as suggested by the theoretical framework in Figure 2, the effect of OCD on outcomes may be best described as conditioning.

Congruency exists between autonomous reflexivity and the condition of action imbued in discontinuous contextual experiences. When such congruency manifests, the autonomous reflexives' thirsts for a sense of independence is probably quenched resulting in them investing not only their time and talent, but also the weight of their psychological capacities in performing their organisational roles while feeling increasingly at home. As a result, their productive outputs are evidenced in their hard work, innovative behaviour, job satisfaction and an appetite for positive change, amongst perhaps other entrepreneurial qualities. Thus, although the autonomous reflexives will tend to be associated with *positive* organisational outcomes, these are also contingent on certain features of the work environment which may serve as an attraction to them in the first instance.

Looking across the chains of inference provided glimpses of the CMO in action. For instance, in the super yacht construction landscape, Delbridge and Edwards (2013) associate the innovativeness of the independent designers with the interplay between their autonomous reflexivity and the contextual discontinuity experienced as a function of their specific actor positions and organisational arrangement. In contrast, the shipyards' designers' communicative reflexivity is believed to result from them being embedded in the shipyard's power relations that create more constraints than enablements. The authors note that "in such a context, the nature of the internal conversation and the scope for reflexive deliberation discloses progressively higher levels of constraint based on the

desire to maintain continuity rather than seeking opportunity for change" (ibid: 938). In Archer's (2007a) research, Oliver is identified as an autonomous reflexive, as a semi-independent financial consultant it may be argued that Oliver experiences a great deal of control over how his job is performed. He must also be very proficient at it for he seems to have the ability to win prizes for his performance on a regular basis. In Dyke et al. (2012) study, the organisational context is described as valuing learning, a learning environment parallels OCD.

According to Coopey (1995: 195) "a learning culture encourages the development of individuals and the transformation of the organisation by nurturing a questioning spirit, experimentation, differences, openness, and a tolerance for disequilibrium." The intervention of autonomous reflexivity in such a context is reflected in the hard work ethics displayed by Cliff, accompanied by an exceptional attention to detail (Dyke et al., 2012). Context not only serve to condition action, as theorised above, it also helps to shape the personal resources available to individuals. The findings also reveal the interconnectedness between contextual discontinuity, autonomous reflexivity and psychological resources. In one way or another, the evidence also suggests that most of the autonomous reflexives have experienced contextual discontinuity at some stage in their life.

As regards Archer's (2007a) autonomous subjects, Abigail experienced contextual discontinuity as a consequence of a failed marriage, exposing her, at the age of fourteen, to significant household responsibilities. Damian's manifested as a lack of similarity with his peers arising from his 'unconventional' sexual orientation. For Rachel, it was dyslexia that forced contextual discontinuity upon her spurred by isolation within her 'household of achievers. Aleem is an ex-convict in Stevenson and Clegg's (2012) work and makes for an interesting case as it comes very close to evince a chain of inference across the whole CMO configuration. Aleem's contextual discontinuity resulted from an early geographical dislocation moving from a predominantly White area in Scotland to the multi-ethnic city of Bradford. This was reinforced by a time spent in jail. Described as an autonomous reflexive, the psychological resources at play in Aleem's life are reflected in his determination to circumvent the constraints associated with his criminal past. He goes about this by planning for a portfolio of potential career trajectories. While he works hard at his studies he does this with a passion. As regards any potential barriers in the future, he takes to them as challenges for overcoming as he pursues upward mobility. Claire

Palley's occupational biography in Cownie (2015) is perhaps more illustrative of the CMO configuration in the work domain.

Fragments of Claire Palley's biography have been analysed in previous discussions, here a more holistic view is taken in a bid to illuminate the theoretical framework and thus the CMO configuration in relation to an autonomous reflexivity intervention. Claire's reflexivity was shaped by various moments of discontinuous experience from her childhood which continued as she went to boarding school and university. Her strength of character, described as resilience by Cownie, was on display from a very early age. Archer remarks that false starts are a common feature of autonomous reflexivity in relation to career decisions. Indeed, having decided that she wanted to have a good degree Claire embarked on a microbiology degree. However, she soon discovered that it was not for her, rather than gave up or ran back home, she addressed the situation head on by deciding to study law.

This was the earliest expression of her resilient nature, "I have got myself into this mess, now I have to get out of it" (Cownie, 2015: 137). Claire's occupational project to remain in academia was accompanied by constant movements between universities, reinforcing her contextual discontinuity, however each time to a more senior position. This gradual hierarchical progression was aided in large parts by her work ethic and self-determination. Her growing publication portfolio ranged from academic articles to newspaper columns while at the same time dovetailing family concerns. Perhaps worthy of note given the context, that is, being a woman in a predominantly male dominated field, is her rapid promotion from lectureship to Readership and then to Chair in Public Law whilst serving at Queen's University in Belfast.

The short summary of Claire's biography seems to provide evidence of a link between the CMO configuration and an autonomous reflexivity intervention thereby providing support for the spirit of the original MRT. Therefore, taking all the previous findings and discussions together, it appears to be the case that an autonomous reflexivity intervention in a context deemed congruent (such as OCD) works through positive psychological resources to produce desirable organisational behavioural tendencies. Furthermore, while context exerts a conditioning effect on workplace outcomes, it also helps to shape the psychological resources available to individuals as suggested by the theoretical framework. Thus, to borrow from the broaden and build theory (Tugade et al., 2004), it is contended here that the experience of OCD may contribute to the conditions necessary

to broaden if not maintain the positive resources in order for PsyCap to flourish. Drawing on the findings presented in this section the following demi-regularities are thus being proposed for further statistical appraisal:

H_{12}: The experience of contextual discontinuity at work will tend to be positively associated with PsyCap.

Consequently relying on the conditioning effect of COCD on behavioural outcomes as well as personal resources:

H_{13a}: The experience of contextual discontinuity in the workplace will tend to be positively associated with task performance.

H_{13b}: The positive effect of contextual discontinuity on task performance will be mediated by PsyCap.

H_{14a}: The experience of contextual discontinuity in the workplace will tend to be positively associated with job satisfaction.

H_{14b}: The effect of contextual discontinuity on job satisfaction will be mediated by PsyCap.

H_{15a}: The experience of contextual discontinuity in the workplace will tend to be positively associated with innovative behaviour.

H_{15b}: The positive effect of contextual discontinuity on innovative behaviour will be mediated by PsyCap.

H_{16a}: The experience of contextual discontinuity in the workplace will tend to be associated with positive change attitude.

H_{16b}: The effect of contextual discontinuity on positive change attitude will be mediated by PsyCap.

2.6 Operationalising COCD

The outstanding question thus, is how can the idea of contextual discontinuity be operationalised and accounted for empirically in organisational settings? From Archer (2007a), the idea of contextual discontinuity in the occupational domain is closely related to autonomy, control, flexibility, novelty, challenging work and variety. The essence of variety and novelty is also illuminated in Delbridge and Edwards' (2013) social complexity approach. While not strictly organisational, Mutch's (2007) historical analysis of Andrew Barclay Walker speaks of the experience of contextual discontinuity in terms of a colourful institutional biography. He particularly foregrounds Walker's

varied life course and exposure to multiple cultural logics as central to his autonomous reflexivity.

In Dyke et al. (2012), the authors speak in terms of a workplace culture of learning. The common ground in these analyses seems to be speaking to the disembeddedness from existential situations, a sense of conscious alienation, in other words, a sense of being positioned relatively external from social structures and looking at them from a vantage point (Archer, 2007c). The consequence of such disembeddedness is the resultant cognitive space enabling the questioning of existing logics indexed often in innovative outcomes. In fact, innovativeness appears to be a marked behavioural tendency associated with autonomous reflexivity which has received attention in the work of Mutch (2007) as well as in Delbridge and Edwards (2013) and others as discussed previously. Given the discussions above, a useful starting point may be to explore the attributes of the social context that make for organisational innovation.

2.6.1 The Different Facets of COCD

The study of organisational context is organised around two dominant traditions, namely, culture and climate (Denison, 1996; Hemmelgarn et al., 2006). According to Schneider et al. (2013), organisational climate and organisational culture are two alternative constructs for conceptualizing the way people experience and describe their work settings. For instance, Aarons and Sawitzky (2006) argue that organisational culture and climate are contextual factors that can affect staff acceptance of innovation. Indeed, the two terms are sometimes used interchangeably (Patterson et al., 2005). However, recent work demonstrates that culture and climate are distinct aspects of organisational process (Glisson & James, 2002; Sarros et al., 2008). Often described as "the way things are done around here" (Spender, 1996: 54), organisational culture refers to the shared norms, beliefs, and behavioural expectations that drive behaviour and communicate what is valued in organisations (Hemmelgarn et al., 2006; Verbeke et al., 1998).

Whilst competing definitions of climate exist, the notion that it is an objective property of the organisation (Ekvall, 1996) is widely accepted. For instance, early researchers delineated climate as enduring organisational or situational characteristics that organisational members perceived (Rentsch, 1990). Thus, whereas "culture refers to the deep structure of organisations, climate mainly concerns those aspects of the social environment that are consciously perceived by organisational members" (Denison, 1996: 624). Therefore, while culture captures a less conscious, more subtle psychology of the

workplace (Schneider et al., 1996), climate describes the way individuals perceive the personal impact of their work environment on themselves (Glisson & James, 2002). Culture has also been proposed to precede and affect climate (Patterson et al., 2004), hence climate can be understood as a surface manifestation of culture (Patterson et al., 2005) on what Schein (1985) has described as the level of artefacts including visible and audible behaviour patterns (Ekvall, 1996). In this work it is the actual experience of the objective organisational properties which is of interest and therefore climate rather than culture seems to offer the most promising avenue to conceptualise OCD.

Early climate research did not have a specific focus (Kruglanski et al., 2007; Patterson et al., 2011; Schneider et al., 2013), but considered employees' experience of broad organisational issues in relation to broad organisational outcomes such as company performance, mostly with limited success (Patterson et al., 2011). In the last few decades, some authors have pointed out the existence of different specific climates related to a specific organisation's goal (Martínez-Tur et al., 2011). The two most prevalent examples of research on climates with a specific strategic focus are in the literatures on climate for customer service and climate for safety (Schneider et al., 2013).

Furthermore, the growing intensity of competitive dynamism has fuelled interests in understanding how organisations can create a climate of innovation (Ahmed, 1998; Anderson & West, 1998; Patterson et al., 2005). Likewise, this study aims to develop an instrument that assesses an individual's work climate perceptions with a specific focus (Patterson et al., 2011), namely the practices and procedures that support a more autonomous form of reflexivity intervention. In the spirit of consistency with the theme of contextual discontinuity, the organisational condition conducive for the practice of autonomous reflexivity has been described as *organisational contextual discontinuity* or OCD for short. Borrowing the terminological nomenclature from Archer (2003, 2007a), a climate of organisational contextual discontinuity (COCD) is defined as:

> The extent employees perceive their work environment affords them the flexibility in terms of freedom to plan, organise and pace their own activities in performing a variety of challenging tasks that they view the work experience as helping them to progressively extend their skilfulness, and also the prospect that this will continue.

The mission 'Operationalising COCD' is partly guided by the literature on climate for innovation, this is because, as revealed in the previous analyses, innovativeness appears to be the hallmark tendency of autonomous reflexivity. This is not with the aim of

neglecting the other behavioural outcomes of autonomous reflexivity, the point is, as emphasised by Schneider (1975), multiple climates exist in organisations and that each climate has a particular referent. Furthermore, boundaries between multiple climates may often be blurred in the sense that a particular referent climate may be responsible for multiple referents. On the other hand, in a sea of multitudes, climates may interact each affecting organisational outcomes in different and unique ways (Baytalskaya, 2011). A case in point, climate for innovation appears to be closely allied with an 'updating climate' (Kozlowski & Hults, 1987). Updating climate reflects "the extent to which innovation, creativity, and up-to-date competencies are representative features of the organisation" (Kozlowski & Hults, 1987: 548).

Empirical findings have supplied evidence to support the hypothesis that the perception of updating climate is related to organisational performance. For example, Potosky and Ramakrishna (2002) found organisational climate for updating perceptions moderated the relationship between self-efficacy and performance, such that the relationship was stronger for individuals who perceived a high climate for updating than for those who perceived a low climate for updating. Furthermore, the idea of a climate for innovation also taps into organisational change or renewal (e.g., Jaw & Liu, 2003). In fact, emphasising the wide-ranging influence of the perception of a climate for innovation, West and Anderson (1996: 681) remark that the "possible benefits might include administrative efficiency, staff well-being, personal growth, increased satisfaction, improved group cohesiveness, better interpersonal communication, and those productivity and economic measures more routinely invoked."

All the subtleties and nuances taken on-board, it seems pragmatic and theoretically justifiable to retain the climate for innovation as a basis to operationalise COCD. Thus, COCD partly reflects the facets of the work environment perceived to provide the structural enablements satisfying the need for innovation. The climate for innovation literature is blessed with an abundance of rich empirical work consequently reflecting a varied conceptualisation of the innovation climate construct. A Google Scholar search for the term 'climate for innovation' returned 165 articles with the term featured in the title and 5000 where the term was mentioned anywhere else in the article. Indeed, there is much scholarly interests in this particular facet of organisational context as revealed by the relatively large percentage of studies published in top tier journals (Anderson et al., 2014).

In their recent review of innovation and creativity in organisations, Anderson et al. (2014) organised studies (2002 – 2013 inclusive) by four levels-of-analysis; individual, team, organisational, and multi-level. Based on this taxonomy, the individual level is particularly relevant for the purpose of this thesis. The individual level is further classified under three headings: individual factors, task contexts, social contexts. Autonomous reflexivity is the individual factor as far as this thesis is concerned, this filtering rationale given, task and social contexts are deserving of further consideration in the quest to operationalise COCD. The review by Anderson and colleagues is useful for this task as it pays specific attention to the measurement of creativity and innovation, a summary of their findings related to the contextual antecedents of creativity and innovation is supplied in Table 4.

Table 4: Summary of Creativity and Innovation Research Findings for 2002 - 2011

Construct /Variable	**Sub-construct**	**Dimension**
Task contexts	Job complexity	**Job complexity**/routinisation
	Goals an job requirements	**Job required creativity/innovativeness**
		Time pressure
		Rewards
Social contexts	Leadership and supervision	Transformational leadership
		Transactional leadership
		Supervisory support; supervisory empowerment behaviours; supervisory benevolence
		Supervisory expectations for creativity; supervisory developmental feedback and **non-close monitoring**
		Influenced-based leadership
	Co-worker influences	Co-worker support; creativity expectations by co-workers
		Presence of creative co-workers
	Customer influences	Customer input; customer affect-based trust
	Other social influences	Feedback
		Evaluative justice
	Social networks	Social network
	Other research	Willingness to take risk; career commitment; **resources for creativity**; organisational identification; job involvement; information privacy
		Creative process management

Note: Adapted from Anderson et al. (2014)

Inspecting the dimensions in the table suggests a strong emphasis on relational factors with the exception of job complexity, job required creativity/innovativeness, non-close monitoring and resources for creativity (items shown in italic bold faces). It is nevertheless interesting to note that the relatively recent work of Patterson et al. (2005) on facets of organisational climate is not included in Anderson and colleagues' review. In fact, the most relevant publication found that appears to address the domain of organisational innovation is Patterson et al. (2005) with their 'open systems quadrant.' In this work Patterson et al. (2005) sought to address the conceptual and methodological shortcomings that have reportedly vitiated past research of organisational climate (see Ashkanasy et al., 2000 for example). They drew on the well-researched Competing Values Model (CVM) by Quinn and Rohrbaugh (1981) to propose and validate their own Organisational Climate Measure (OCM).

The CMV represents a framework for separating and classifying criteria for evaluating performance of organisations in terms of structure (flexibility vs. control) and focus (internal vs. external) (Remneland-Wikhamn & Wikhamn, 2011). These are organised into four quadrants (Open Systems, Human Relations, Internal Processes, Rational Model) that address distinct demands in the organisational arena (Trivellas & Drimoussis, 2013). For each of these four domains, Patterson and colleagues developed a number of dimensions to describe and empirically capture its content (Remneland-Wikhamn & Wikhamn, 2011), the survey consisting of 82 items is distributed on 17 scales (Hoff, 2009).

Importantly, Patterson et al. (2005) emphasise that the model does not prescribe that organisations should be located predominantly in one quadrant but rather should reflect the rich mix of competing views and perspectives in organisations. They propose that organisations will be active in, and give emphasis to, each domain, but with differing strengths. Furthermore, the dimensions are flexible in the sense that they can be taken individually to measure the outcomes of the climate (Dzulkifli & Md Noor, 2012). For example Patterson et al. (2005) suggest that researchers examining innovation are more likely to focus on scales from the Open Systems quadrant. The open systems approach emphasises the interaction and adaption of the organisation in its environment (Remneland-Wikhamn & Wikhamn, 2011), it centres on readiness, change and innovation, where norms and values are associated with growth, resource acquisition, creativity and adaptation (Howard, 1998; Patterson et al., 2005). This description carries the promise of fostering the vibrant type of context favoured by autonomous reflexivity.

The four dimensions of the Open System quadrant are: "(1) flexibility, i.e., an orientation towards change, (2) innovation, i.e., the extent of encouragement and support for new ideas and innovative approaches, (3) outward focus, i.e., the extent to which the organization is responsive to the needs of the customer and the marketplace in general, and (4) reflexivity, i.e., a concern with reviewing and reflecting upon objectives, strategies, and work processes in order to adapt to the wider environment" (Remneland-Wikhamn & Wikhamn, 2011: 288). In validating the Open System quadrant Patterson et al. (2005) merged flexibility with innovation. A total of six statements are used to measure this combined dimension and these include: (a) *new ideas are readily accepted here*; (b) *management here are quick to spot the need to do things differently*; and (c) *people in this organisation are always searching for new ways of looking at problems*. These statements propose that the innovation/flexibility aspect is about readiness for and responsiveness to new ideas, problem-solving, and work procedures (not necessarily originating from external sources) as well as assistance and support in the innovation process (Remneland-Wikhamn & Wikhamn, 2011). Experience of such a context may be intellectually stimulating by increasing employees' awareness of problems and stimulating them to rethink and challenge the status quo (Shanker & Bhanugopan, 2014). As such, it can be argued that the innovation/flexibility aspect opens up the cognitive space for autonomous reflexivity.

According to West (2000), a reflective climate tends to reshape employees' cognitive orientation towards the innovation. Statements of the reflexivity dimension include: (a) *in this organization, the way people work together is readily changed in order to improve performance*; (b) *there are regular discussions as to whether people in the organisation are working effectively together*; and (c) *the methods used by this organisation to get the job done are often discussed*. These statements indicate that in a reflective climate there is scope for the status quo to be questioned, potentially leading to the experience of variety as work is constantly updated in line with changing circumstances. This may expose individuals to multiple logics, shaping rich and diversified institutional biographies. Furthermore, in a reflective climate employees are likely to experience a high degree of ownership and control in terms of how they perform their jobs. Hence, the experience of a reflective climate has the potential to inject discontinuity in how the social environment of the organisation is experienced.

The outward focus dimension concerns the extent to which the organisation is responsive to the needs of the customer and the marketplace in general (Patterson et al., 2005). Five

statements assess the outward focus dimension of which four are reverse-coded, and these include: (a) *ways of improving service to the customer*; (b) *customer needs are not considered top priority here*; and (c) *this organisation is slow to respond to the needs of the customer are not given much thought*. As can be discerned from these statements, this dimension is strongly customer centric. Indeed, this can be viewed as a potential weakness of this measure as none of the statements addresses the active participation with external actors other than customers, such as partners and suppliers (Remneland-Wikhamn & Wikhamn, 2011) for instance. Exploration of external knowledge from stakeholders in the marketplace may well allow a firm to have different points of view and approaches to problem-solving (De Toni et al., 2011). Therefore, individuals who experience an outward focus climate are likely to face varied and competing logics which may impose upon them the need for thoughtful deliberation in arriving at their preferred course of action. In other words, embeddedness in competing logics (Pache & Santos, 2013) may trigger reasoning at a distance from existing practice on the part of organisational actors.

However, the narrow attention of the outward focus climate advanced by Patterson et al. (2005) imposes restrictions on its utility insofar as an inclusive approach to autonomous reflexivity is concerned. Inclusivity in the sense that the word 'customer' suggests marketplace relations (Sharrock, 2002) which may not sit well in some occupational domains, such as in the public sector for instance. Indeed Gray (2007: 1) finds it both conceptually flawed and practically risky to "re-badge all service users as customers." According to Gray,

> Conceptually flawed because, there is a specific relationship inherent in being a customer that overlooks other important relationships in the consumption of public goods and services. Practically risky because establishing inappropriate relationships undermines the proper provision and consumption of those goods and services (*ibid.*, 1)

The aim of this work is to explore the internal validity of the ICONI by appealing to a large swathe of the working public and not to restrict it to only commercial organisations. Gray's observations suggest that the notion of 'a customer' may give rise to confusion if not frustration in certain occupational domains potentially alienating some occupational sectors from the study. In addition to that, the relatively large percentage of reverse-coded statements threatens the psychometric reliability of the measure. In fact there is an ongoing debate in the methods literature on the use of reverse-coded items with several authors reporting compromised scales factor validity (e.g., Han et al., 2011; Weems &

Onwuegbuzie, 2001). Considering the conceptual as well as the psychometric lacks of the outward focus dimension makes a case for its omission from the COCD measure. Notwithstanding, the OCM also makes provision for a climate dimension that supports *autonomy* located within the Human Relations quadrant. Hackman and Oldham (1975: 162) define job autonomy as "the degree to which the job provides substantial freedom, independence and discretion in scheduling the work and in determining the procedures to be used in carrying it out."

This description sails very close to the definition of COCD offered above. Patterson et al. (2005) offer the following statements as part of the measuring instrument of the autonomy climate: (a) management let people make their own decisions much of the time; and (b) management trust people to take work-related decisions without getting permission first. In spite of it being a feature of the Human Relations quadrant, Song et al. (2012) argue that job autonomy encourages more engagement and reflective flexibility for performing the tasks with more creative self-controlled methods. Furthermore, Warren (2003) observes that job autonomy inspires employee efforts to protest and/or change the organisational status quo. Indeed, job autonomy has been found to predict innovative work behaviours too (Alrumaithi et al., 2015; Ramamoorthy et al., 2005; Tushman & Nadler, 1986). Hence, it is advanced here that an autonomy supportive climate helps to create the contextual condition which favours the practice of autonomous reflexivity.

In addition to the aforementioned, the literature on innovation and creativity (e.g., Amabile et al., 1996; Scott & Bruce, 1994) also emphasises the availability of resources as a key organisational determinant of innovation and creativity. However, *resources for innovation/creativity* is not a contextual factor under the rubric of the OCM. Nevertheless, Scott and Bruce (1994) have investigated the organisational resources characteristics that seem to influence creativity and innovation and offered the following statements as part of the measure: (a) *there is adequate time available to pursue creative ideas here*; and (b) *our organisation gives people free time to pursue creative ideas during the workday*. These statements put emphasis on time as a resource for innovative thinking. More time to think can also mean that individuals have the opportunity to disembed themselves from existential concerns of work routines. In other words, employees have more time to reflect critically on their own experiences.

The criticality of time to autonomous reflexivity is accentuated by Archer (2007a) in her *home aloneness* metaphor. In fact, it is maintained here that time as a 'creative resource'

is central in holding the idea of COCD together. For instance, a reflective climate is realisable only if time is availed during the day for the evaluative self-reflective processes to take place. In fact lack of time to think encumbers self-reflection to the extent that "in academia and beyond, the busyness of daily working life is reflected in what Buddhists call our frenetic 'monkey minds'" (Webster-Wright, 2013: 558). As a consequence, there is increasing support for the practice of mindfulness to tame this primeval tendency (Ergas, 2015; Webster-Wright, 2013). Likewise, the innovation/flexibility dimension speaks in terms of searching for new solutions. The searching process is dependent on availability of time, however, searching is one thing but in order to churn out novel ideas the working memory has to have the time to take in new information, draw former information and experiences from long-term memory, and re-think ideas as the new and old interact (Jung & Reid, 2009). Indeed, as Harmon and Mazmanian (2013: 7) remark, "having time to think is precious and important if you want to achieve anything close to original thought."

While it may not be blatantly evident, 'time to think' enters into autonomy support and in a subtle way at that. For instance, going by Hackman and Oldman's (1975) description, high autonomy can mean independence (Bakker et al., 2005), freedom, and control over one's work (Liu et al., 2011). This means making more decisions about the procedures to be used in carrying out the job (Zheng et al., 2011). With autonomy comes responsibility (Galletta et al., 2011) and accountability (Wallace et al., 2011) if trust is to be maintained. Therefore, the experience of autonomy support is accompanied by a need for greater self-awareness in the workplace, in the sense that individuals are forced to spend more time thinking about how to execute the job as well as the battery of responsibilities that goes with it.

Thus, the commonality or underlying link (Luthans et al., 2007) in COCD is a time-space mechanism shared across each of the facets that contribute to separate thinking from structure. In other words, availability of time supports the separation of decisions from cognition, and cognition from activity (Brown, 2005). It is through this process of disembeddedness from 'contextual presenteeism' that self-reflection is rendered mentally stimulating, fosters learning, questions the status quo, and ultimately emerges in innovative manifestations. It is therefore being proposed that even though the climate dimensions of innovation/flexibility, reflexivity, autonomy and resources may have conceptual independence and discriminant validity (Luthans et al., 2008b), they may also make a unique theoretical and measureable contribution to a higher order core construct

(Luthans et al., 2007) of COCD, representing one's experience as independent from a given structured situation. It is hence the view taken in this thesis that:

H_{17}: COCD is a second order core construct made up of four climate dimensions of innovation/flexibility, reflexivity, autonomy and resources.

2.7 Chapter Summary

The realist synthesis is a new but emerging approach to evidence review (Rycroft-Malone et al., 2012). It is best known as a method of systematic review for complex policy interventions (Pawson et al., 2005). Such being the convention, realist reviews generally culminate in recommendations for dissemination and implementation (Pawson et al., 2004). In this thesis a case has been argued for intervention not as per the conventional understanding, but as an intervening human power. Supported by the notion of pre-existence of the social, reflexivity as an intervention finds saliency particularly in contexts described as novel. Conceptualising autonomous reflexivity as an intervention paved the way for linking the CMO framework with the morphogenetic approach, both inspired by the critical realist philosophy, in formulating a theoretical framework for the review.

Employed for its rigorous approach to theory building (Marchal et al., 2012), rather than as an evaluative tool, a little creativity was needed to appropriate the steps of the realist review to this work. Guided by the research questions and the theoretical framework, the review of the primary studies has progressively revealed the mechanisms and outcomes of an autonomous reflexivity intervention in an organisational context deemed congruent. Rather than exclusively focusing on the CMO configurations, the findings have been discussed with the aim of illuminating the link between autonomous reflexivity and the individual components of the CMO. And rather than just providing brief summaries or tables, the findings were discussed as would be expected in the qualitative tradition relying on support from the literature to provide theoretical clarity when needed.

In as much as possible the hypotheses proposed were supported by qualitative evidence from the studies analysed although theoretical abstraction was also required in some instances to assign meanings to the findings. For instance establishing the link between PsyCap and autonomous reflexivity required a higher level of abstraction once all the psychological capacities were unpacked. Perhaps one of the limitations of this review is the exclusive use of qualitative studies. This was inevitable given the lack of quantitative studies addressing Archer's version of internal conversation. Notwithstanding, once

PsyCap was established as the psychological mechanism, the PsyCap literature was mined for quantitative evidence to triangulate the findings in relation to outcomes.

In terms of conclusion, rather than concluding with recommendations for dissemination and implementation, the outcomes of this review are hypotheses for further statistical testing, a procedure that would be welcomed in the context of a realist review, especially in terms of increasing the external validity of the findings. This chapter was also tasked with identifying the facets of COCD. This task relied on the creativity and innovativeness of autonomous reflexivity and it has been argued that particular features of the organisational context are more supportive of innovative behaviour than others. This allowed for the climate of innovation to be explored. Two dimensions from Patterson et al.'s (2005) open quadrant, namely flexibility and innovation, and reflexivity were retained alongside autonomy from the human relations quadrant. Drawing on the wider literature on creativity and innovation in the workplace, the notion of organisational resources was added to make up a proposed 4-factor second order core construct COCD. To what extent the hypothesised structure of COCD meets the rigours of statistical analysis is examined in the chapters that follow. Figure 4 represents the main conceptual model of this thesis and it pulls together the hypothesised relationships (i.e. H_5 to H_{16}).

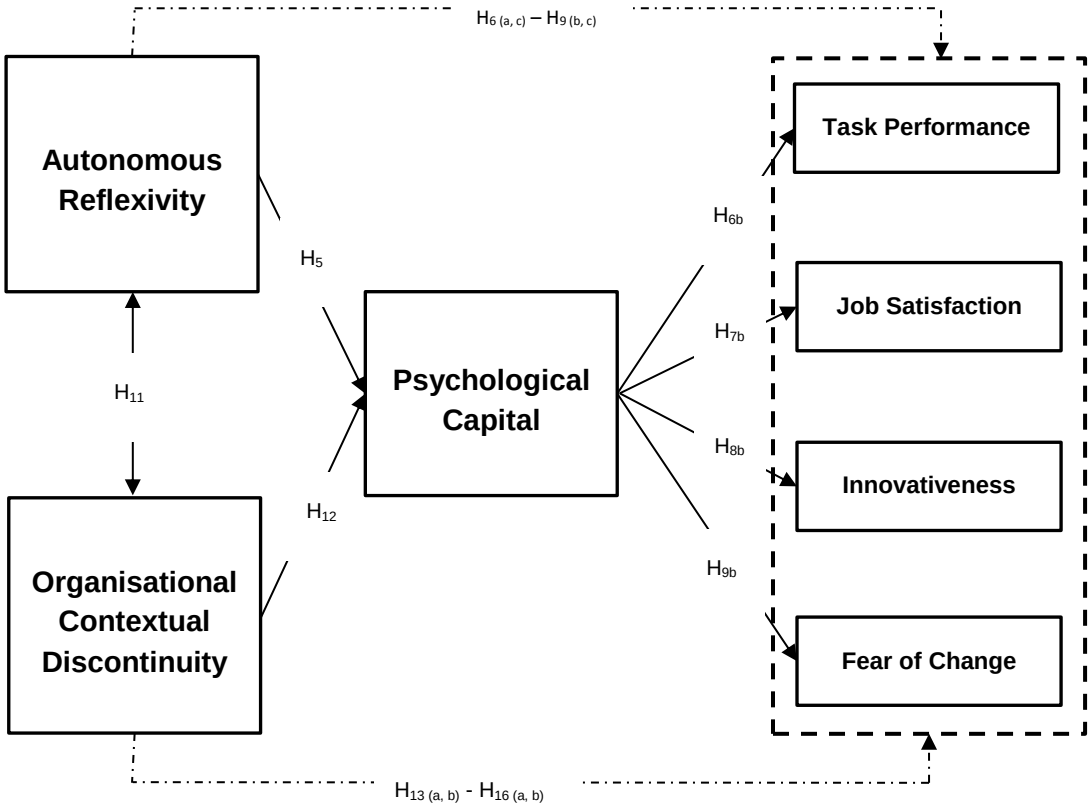

Figure 4: Conceptual Model 2 – Linking AR, COCD, PsyCap and Work Outworks

Chapter Three: Methodological Considerations

3.1 Introduction

The quantitative work in this thesis builds on and complements the findings of the realist review reported in Chapter 2. The business of this chapter is in ensuring that the data is fit for purpose prior to formal statistical analyses. Thus, this chapter is tasked with reporting the initial steps that were taken in order to arrive at a data set that meets with the *a priori* conditions for multivariate analytical techniques. Therefore, this chapter reports on procedures relating to, for example, sampling, data screening, and the different measures included in the study.

3.2 Sampling and Recruitment

Although it has been argued that longitudinal designs are more appropriate than cross-sectional designs in testing causal hypotheses (Waaktaar et al., 2004), the constraints of time and resources imposed the logic of a cross-sectional approach on the quantitative research strategy. Nevertheless, the fact that this phase of the research is supported by qualitative evidence from the realist review serves to attenuate some of those concerns, such as, validity of findings that are otherwise associated with cross-sectional research designs. Furthermore, it is not uncommon for researchers to rely on cross-sectional data to examine the nomological network during the validation of a new construct as was the case with the PsyCap construct (see Luthans et al., 2007, for example). We live "in a time when people's willingness to participate in questionnaire-based research is definitely decreasing" (ten Klooster et al., 2008: 516). The reality of this statement was felt first-hand during the early stages of data collection. The first attempt at data collection was for piloting purposes and was based on a sample frame assembled from the FAME database.

3.2.1 Sampling

The FAME database contains up-to-date information on over seven million UK and Irish companies (Story et al., 2015), as well as the contact details of key personnel. A sample frame was constructed consisting of 10000 potential respondents. In the first wave survey a random sample of 1000 respondents was contacted with a questionnaire by email. After several reminders and almost 6 months later 29 completed questionnaires were obtained, an effective response rate of 2.5%. In total, 50 useable completed questionnaires constituted the pilot study, the other responses were obtained from personal contacts as well as from other academic colleagues mostly through snowballing. The few suggestions

made to improve the readability of the survey were taken into consideration, but given the experience of the low response rate during the piloting stage, and in the interest of time, it was decided that professional help should be sought if the work was to be completed timely. After careful examination of what was on offer in terms of market research, the service of Research Now was retained to help with the data collection for the actual survey.

Research Now is a reputable and well-established company in market research with access to over 6.5 million potential respondents spanning multiple industry sectors across 38 countries (Research Now, 2015). It also boasts the largest panel of internet users in the UK (Robinson et al., 2010), consisting of over 400000 members (Maples et al., 2013). Indeed, online panels are increasingly popular for their significant cost savings, higher response rates than unsolicited surveys (Göritz et al., 2002) and more reliable data due to survey completeness (Behrend et al., 2011). Furthermore, it is believed that online surveys also increase anonymity and privacy, which should increase response accuracy (Hing et al., 2015; Shih & Fan, 2008), particularly about deeply personal subjects such as internal conversation and psychological states.

In addition to these strengths, Research Now adopts an extensive member verification process which serves to eliminate undesirable respondents. As a result, the firm boasts reputations for high quality online panels as well as high response rates (Research Now, 2015). It is therefore not surprising that the market research firm has won the coveted title as best in category for online sample providers for two years running (MarketResearchCareers.com, 2015). Recently published works that have benefitted from the service of Research Now include, Maples et al. (2013), Thomas (2013), and Lewis et al. (2013). However, the use of online panels in academic research is not unproblematic. Disadvantages of online panels include restriction to internet users (Hing et al., 2015), although this bias is now very small with 44.7 million adults (86%) in the UK having accessed the Internet in the first quarter of 2015 (Office for National Statistics, 2015b). A further potential limitation is that respondents in online panels agree to participate in return for remuneration, which may differentiate them from the general public (Hing et al., 2015).

The results of two experiments conducted by Goritz (2004) however suggest that remuneration may not be an important motivational inducement for participants in online panels to take part in online surveys. In particular, he notes that “online panellists start a

survey, stay until the end, and answer questions conscientiously for reasons other than receiving large amounts or particular denominations of money, or because of other types of material incentives" (*ibid.*, 341). Furthermore, rather than monetary compensations, Research Now rewarded respondents by e-Rewards for their participation. In addition to these e-Rewards, respondents were promised and then provided an individualised report, interpreting and explaining their survey results as an incentive to complete the survey fully and accurately, a practice recommended in Luthans et al. (2013). Online panel data have also been accused of unrepresentativeness, for example, Göritz et al. (2002) explain the challenge in making sure that a panel sample, once constructed, continue to accurately represent the reference population. The representativeness of the sample in this study is discussed further in section 3.4.

3.2.2 Recruitment

The company (Research Now) was instructed that the study sample should be representative in terms of age, gender, education level, and job type of UK working adults. In line with previous studies involving PsyCap, the aim of this type of sampling was to try and capture as inclusive a socio-demographic coverage as was reasonably possible. Potential respondents were provided a link via electronic mail to an online secure server containing embedded links. A filter was put in place to screen out respondents who had been in their current employment for less than six months. This was necessary given the nature of some of the questions, in particular those relating to performance and job satisfaction. It was felt that the study would benefit more from employees with at least 6 months of work experience in their current job. A filter was also set to screen out self-employed respondents as the survey was aimed at understanding behaviour in an organisational context.

Following structural equation modelling (SEM) guidelines for number of responses, the required number of respondents was estimated on the basis of the total number of observables or exogenous variables. The largest potential model (Model AR-COCD) is made up 9 exogenous variables (including 7 control variables), thus based on a ratio of 10:1 (exogenous: responses) recommended by Hair et al. (2010), the limit of 350 valid responses which was set erred on the conservative side. Following screening, 340 responses were retained, data screening is discussed in section 3.3.

The link to the questionnaire went live on the 15 July 2014 and after almost 3 weeks the limit set for completed questionnaire was achieved. Considering the filters and the quota

set, the last valid response was received on the 4 August 2014 and the survey link was deactivated. Of the 350 responses, 133 respondents (38%) left their contact details. A field was also included in the questionnaire for respondents to comment on the survey, a handful (5%) of respondents provided feedback and those were generally positive comments. For instance, some commented that they found the survey interesting, thoughtful and well-constructed. One respondent remarked in particular, "*more interesting survey than I am used to*," whilst another stated, "*I would be interested in being informed of the outcome of this study*."

3.2.3 Non-response Bias

To test for possible nonresponse bias, early responses were compared with late responses (Schmidt, 2001). This tactic has been used in other research as a proxy of non-response bias check when direct data of nonresponses is not obtainable (e.g., Datta et al., 2005; Hung & Petrick, 2010). Previous studies (e.g., Hung & Petrick, 2010; Schmidt, 2001) have tested non-response bias on demographic variables such as gender, employment status, and ethnic background while other studies such as Datta et al. (2005) carried out similar test using key study variables. This means that there are no strict prescriptions as to the type of variables most suited to test for nonresponse bias. In this study a total of 186 early responses and 144 late responses were compared on 5 socio-demographic characteristics (age, educational level, social mobility, tenure in current post and tenure in current organisation). Response bias was coded as a dummy variable, 0 representing early responses and 1 representing late responses. ANOVA was then used to test the null hypothesis that there was a significant difference between early and late responses respectively. The results of the ANOVA are shown in Table 5, as it can be observed, the results of the ANOVA show that there was no significant difference between early and late responses on the variables tested thus rejecting the null hypothesis.

Table 5: Nonresponse bias check

	Within groups comparisons	
	F	**Sig.**
Age	.173	.678
Education level	1.190	.168
Social mobility	.842	.360
Tenure in post	.573	.450
Tenure in organisation	1.622	.204

3.3 Data Screening

Before the data were analysed, they were screened and cleaned (Luthans et al., 2013). Although filters had been put in place to ensure that only respondents deemed suitable completed the survey, a few deviant cases were identified. Five cases were excluded on the basis that the respondents were self-employed. Cases were also removed where a lack of engagement (response bias) with the survey was noticeable. This was assessed by calculating the standard deviation for each case and those of particularly low standard deviation (< 0.70) were excluded as suggested by Gaskin (2012a). A low standard deviation is noticeable by a large percentage of responses sharing the same weighting. Four cases failed to meet the standard deviation threshold and following further inspection were removed; most of the answers had been assigned a weighting of 4 (equivalent to "neither agree nor disagree"). Worthy of note is one case with a zero standard deviation where all the responses had been assigned a weighting of 4. Next, missing data analysis was performed in SPSS revealing a number of missing data points.

With the exception of one case the number of missing data points in each observation did not exceed 10.00% (Hair et al., 2010) of the total number of variables. As a result of the variable screening, one further case was removed as it exhibited a total of 21 missing data, well over the 10.00% recommended threshold. The few remaining missing data points were then computed in SPSS using the multiple imputation procedure as recommended by Gaskin (2012a). Finally, skewness and kurtosis checks were carried out to assess univariate normality of individual items (Hair et al., 2010). Skewness is the degree to which a variable's distribution is asymmetrical whilst kurtosis is an index of the peak and tails of the distribution. Structural equation modelling (SEM) in combination with the maximum likelihood (ML) estimation technique were elected as the preferred statistical analytical techniques from the onset. As such, it was essential to examine how the data performed in respect to the accepted parameters of skewness and kurtosis. Most statistics used in SEM assume multivariate normal distribution, particularly ML method assumes multivariate normality (Weston & Gore, 2006).

A good understanding of the distribution of each observed variable provides a valuable insight as to whether the assumptions for multivariate normality would be met. Several guidelines exist as to what constitutes acceptable levels of univariate skewness and kurtosis. For example, Hair et al. (2010) suggest that as a rule of thumb, the calculated values of both measures should not exceed the critical values associated with the 0.05 and

0.01 significance levels (i.e. ±1.96 and ±2.56). Other writers are more prescriptive specifying values between ±2.00 (e.g., Panuwatwanich & Stewart, 2012), more conservative authors have specified acceptable limits of skewness and kurtosis in the ±1.00 range (e.g., Amundsen & Martinsen, 2014; Savickas & Porfeli, 2012).

The initial screening for outliers was done in SPSS employing the 'box plot' procedure. This analysis suggested outliers in a number of variables, most remarkably in tenure in organisation and tenure in post. Inspection of the z-scores of individual cases revealed a considerable number of observations exceeding the critical value of ±2.56 as recommended by Hair et al. (2010). On closer inspection of the Likert-type variables, it was noted that the observations at the higher critical z-values were generally associated with a score of 1 on the Likert scale. At this stage those cases were not considered as deserving of further attention by way of replacement values; care was exercised so as not to introduce any bias in the study.

As far as the continuous variables were concerned, tenure in organisation and tenure in post displayed a sizeable amount of high critical z-scores (a total of 13 scores exceeding the upper and lower thresholds of ±2.56). Closer inspection of the age of the respondents revealed high correlation between tenure and age (m = 46.33) for instance. The high scores were not considered to be related to error in imputation and it was decided that the values should not be tempered with but rather to accept that the sample displayed characteristics of univariate non-normality.

To better understand the extent of non-normality across the sample a normality test employing the Kolmogorov-Smirnov (KS) test (Yap & Sim, 2011) was performed. The KS test is preferable to the Shapiro-Wilk (SW) test as the latter is most effective for sample size of less than 50 (Razali & Wah, 2011). The widespread significant values of the KS test statistics confirmed that non-normality was pervasive across the sample. A full list of the KS normality test results for the items in the study is supplied in Table 42 - Table 46 found in the Methodological Appendix (MA). As it will be observed, the majority of the variables were associated with a significant KS statistic suggesting a violation to the assumption of univariate normality, this led to a rethink of the original analytical procedures. Later in the chapter the impact of such violation and how it was addressed are discussed.

3.4 Sample Socio-demographic Characteristics

One of the noted limitations associated with online panels as a sampling method concerns sampling bias. More precisely, there is no guarantee that any particular method of online recruitment would yield a sample representative of some particular population (Birnbaum, 2004). However, it would seem this is an issue that market research companies are keen to resolve. According to Gillespie et al. (2010) the pressure is of an economic nature and seems to be emanating from the many business sectors that use market research data extensively. As a result, market research companies have been taking steps to ensure that their study participants are as representative as possible and considerable resources are committed to ensuring this (*ibid.*).

The data in Table 6 compare the study sample with the UK working population on four socio-demographic characteristics as follows: age, sex, education level, and job type. The data for the sample have been adjusted to reflect the mode of reporting as employed by the Office for National Statistics (ONS). One further adjustment was made to the highest level of education achieved, the descriptions of the different levels of education as supplied by the ONS are found in Table 7. Given the nature of the data in the sample for education level, it was not possible to adopt the taxonomy in exactly the same format offered by the ONS. Instead, levels 1, 2, and 3 were combined into one category. This was necessary because the questionnaire for this study did not distinguish between the number of GCSEs (or O levels) or equivalent attained, and the same applied for the GCEs (or A levels) or equivalent. Otherwise, the other 3 classes were applied to the data as provided by the ONS.

Compared to the population of the working adults in the UK, the sample for this study appears to be representative in the age range 35-39. The sample is underrepresented in the age brackets 16-24 and 25-34 whereas the groups 50-64 and 65+ appear to be overrepresented. Nevertheless, on the whole, the sample appears to represent all the different age groups of the UK working adult population. The sample is also finely poised at 50.6% female and 49.4% male compared to 50.3% female and 49.7% male in the population. In terms of education level, the sample and the population appear to be significantly contrasted on two levels. The pre-higher education qualification levels (combined levels 1, 2, and 3) appear to be under represented at 32.9% in the sample compared to 45.8% in the population. On the other hand, the degree level and above qualification bracket shows a very high representation in the sample at 58% compared to

34.9% in the population. Furthermore, the apprentices group is not represented in the sample compared to a representation of 3.6% in the population.

Table 6: Socio-demographic Characteristics of the UK Working Population vs. the Study Sample

Socio-demographic characteristics		Sample (%)	UK population (%)
Age	16-24	5.30	12.42
	25-34	15.60	22.77
	35-49	33.8	34.66
	50-64	39.70	26.45
	65+	5.60	3.69
Sex	Female	50.60	50.3
	Male	49.40	49.7
Education level	No qualifications	4.10	10.23
	Levels 1, 2 and 3	32.90	45.79
	Apprenticeship	-	3.64
	Level 4 and above	58.20	34.93
	Other qualifications	4.70	5.42
Job type	Managers, directors and senior officials	15.30	10.20
	Professionals	28.50	19.70
	Associate professionals. and technicians	5.60	14.00
	Administrative and secretarial	15.60	10.70
	Skilled trades	2.90	10.70
	Caring, leisure and other services	10.00	9.30
	Sales and customer services	14.40	7.70
	Process, plant and machine operatives	2.40	6.40
	Elementary occupations	5.30	10.80
	N	340	30,935,100

Source: Office for National Statistics (2011; 2015)

In general, these figures tend to suggest a higher than average level of education in the sample compared to the population. As regards job types, the sample figures tend to suggest a higher representation of jobs that are likely to attract a higher income, and therefore by implication, requiring a higher level of academic achievement. For instance, whilst the professional group is the most prevalent category in both the sample and the population, at 28.5%, the professionals in the sample are almost 10 percentage point higher than in the population (19.7%). A similar trend is replicated in the managers,

directors and senior officials' group (15.3%) representing a 5 percentage point higher in the sample than in the population (10.2%). On the other hand, the sample appears to be underrepresented in jobs requiring lower academic qualifications. For instance, skilled trades make up only 2.9% of the sample while in the population they represent 10.7%. Similarly, process, plants and machine operatives represent 2.4% of the sample whereas they make up 10.8% of the population. On the whole, in relation to job type, the sample seems to over-represent job types that require a higher level of formal education compared to other skilled professions. Nevertheless, there is consistency between the sample and the population in regards to the relative percentage of both groups.

Table 7: Description of Highest Education Level

Highest Education Level	Description
No qualification	
Level 1	1-4 O Levels/CSE/GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level 1, Foundation GNVQ, Basic/Essential Skills
Level 2	5+ O Level (Passes)/CSEs (Grade 1)/GCSEs (Grades A*-C), School Certificate, 1 A Level/ 2-3 AS Levels/VCEs, Intermediate/Higher Diploma, Welsh Baccalaureate Intermediate Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma;
Apprenticeship	
Level 3	Level 3: 2+ A Levels/VCEs, 4+ AS Levels, Higher School Certificate, Progression/Advanced Diploma, Welsh Baccalaureate Advanced Diploma, NVQ Level 3; Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma;
Level 4 and above	Degree (for example BA, BSc), Higher Degree (for example MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI), Professional qualifications (for example teaching, nursing, accountancy);
Other qualifications	Vocational/Work-related Qualifications; Foreign Qualifications (not stated/level unknown).

Source: Office for National Statistics (2011)

In addition to the socio-demographic characteristics captured in Table 6, the other characteristics of the sample that are worth noting include tenure, industries represented and size of firms. The mean tenure in the current organisation is 9.29 years (SD = 9.24) with a range of less than 1 year to 50 years. Mean tenure in the current position within the organisation is 6.42 years (SD = 6.53) with a range of less than 1 year to 39 years. Industries represented include education (14.1%), government (6.8%), retail (13.5%),

construction (3.2%), professional services (7.7%), health and social care (11.8%), financial and banking (4.4%), manufacturing (3.8%), charity (8.2%) other services (17.4%) and others (9.1%). The size of the organisations represented include organisations employing 250 workers or less (43.2%), more than 250 workers (45.9%), and not given (10.9%). As the various socio-demographics indicators suggest, the sample has a good spread across all the indicators. However, the sample has the typical weaknesses of online panels, under-presenting or over-representing the population in the sample on a number of these indicators. Nevertheless, while not fully representative of the working population in the UK, it may be concluded that the sample represents a broad cross section of the working adults (Luthans et al., 2013).

3.5 A Priori Consideration of Method Effects

The dangers of the effects of method bias have long been recognised in the research literature (MacKenzie & Podsakoff, 2012). This view is echoed by Doty and Glick (1998) claiming common methods variance (CMV) as one of the primary threats to construct validity in organisational sciences. However, these arguments have not been universally celebrated in the research community at large, and there is little consensus among researchers regarding the conditions under which CMV actually invalidates empirical results (Siemsen et al., 2010). Furthermore, the literature remains inconclusive with respect to whether and when CMV inflates observed relationships among variables (Doty & Glick, 1998; Williams & Brown, 1994). CMV refers to the shared variance among measured variables that arises when they are assessed using a common method (Spector & Brannick, 2009). Thus, following on from this definition, common method bias (CMB) may be defined as the degree that parameter estimates asymptotically converge to values different from their true population value due to the presence of CMV (Siemsen et al., 2010). Therefore, CMV relates to the systematic error variance whilst CMB reflects the inflation of relationships due to CMV (Conway & Lance, 2010). Such being the case, it is widely believed that CMV can have a serious confounding influence on empirical results, yielding potentially misleading conclusions (Campbell & Fiske, 1959).

An informative summation of the potential sources of CMV is provided in Podsakoff et al. (2003). In this work, it is claimed that CMB may arise from having a common rater, a common measurement context, a common item context, or from the characteristics of the items themselves. Perhaps the source of biases that has divided opinion the most is associated with common source or rater. According to Podsakoff et al. (2003) potential

sources of these biases include factors such as consistency motif, implicit theories, social desirability, leniency biases, acquiescence, positive and negative affectivity and transient mood. Broadly speaking, common source bias tends to be viewed as common variance between measures either due to using survey research in general or to using the same respondent (Siemsen et al., 2010). According to Malhotra et al. (2006) in typical survey studies in which the same rater responds to the items in a single questionnaire at the same point in time, data are likely to be susceptible to CMV. This susceptibility seems to heighten when the dependent and independent variables are perceptual (Chang et al., 2010). For Podsakoff and Organ (1986), the most critical problem in the use of self-reports is identifying the potential causes of artefactual covariance between self-report measures of what are presumed to be two distinctively different variables.

However, the view that correlations between variables measured with the same method, usually self-reported surveys, are inflated due to the action of CMV has attracted a barrage of criticism and empirical refutation. For instance, Spector (2006) provided indirect evidence against inflation observing that correlations among self-reported variables are at least sometimes near-zero, and sometimes different-method correlations are higher than same method correlations (Conway & Lance, 2010). What seems to be at a disagreement is the notion that all constructs may be affected by a systematic variance produced by a particular method. Thus, Spector (2006) advances the argument that instead we should think for each measured variable what the likely sources of variance might be and how different features of method might control them. In essence, whilst strongly opposed to the idea of a universally shared variance approach, Spector recognises the inevitability of biases in empirical studies (not just survey) and the need to devise strategies to account for them in research designs.

Taken together, these concerns about common rater bias could indeed present serious challenges to the validity of this research in light of its cross-sectional nature as well as its reliance on self-reporting measures. The practice of obtaining measures of the predictor and criterion variables from different sources (Chang et al., 2010; Podsakoff et al., 2003) is highly regarded as a procedural remedy for common rater bias. However, there is increasing evidence to suggest that rather than providing a more accurate estimate of true relationship among constructs, relationships estimated using different methods tend to be more attenuated and less accurate as compared to same method correlations (Conway & Lance, 2010). The very nature of this research renders it more averse to measures from different sources.

Although in upholding the mantra of rigour and objectivity the use of supervisor (Yu-Lin & Ellinger, 2011) or peer ratings (Wu et al., 2011) on measures of performance outcomes, such as, innovative behaviour, may be appealing, there are potential pitfalls. For instance, some aspects of behaviour may remain hidden leading to 'raters' providing merely opinions at best. Unless the behaviour of interest is systematically observed and recorded, it may be very difficult for, say a colleague, or even supervisors to access credible evaluation of them; these instances may indeed be more injurious to the validity of the research than self-reported scores. As observed by Spector (2006), for many constructs an incumbent will be a more valid source of data than an alternative source, rendering the all-self-report study more accurate than one mixing incumbent with an alternative source. Shalley et al. (2009: 495) make a related point when they argue that "employees are best suited to self-report creativity because they are the ones who are aware of the subtle things they do in their jobs that make them creative."

With the foregoing against the background, it was decided that self-reported ratings in this instance would provide a more illuminating understanding of the outworks of reflexivity. However, in appreciating the implication of this rationale, safeguards were put in place with the aim of improving the reliability of the responses. In addressing the other potential sources of bias revealed in Podsakoff et al. (2003), as many *ex ante* research strategies (Chang et al., 2010) recommended in the common methods bias literature (Francis, 2011) were implemented. In the first instance, the questionnaire was piloted using a sample of working adults in the UK.

The main aim of the pilot study was to gather feedback on the readability and comprehensibility of the measures given that some of the constructs were somewhat *abstract* in nature. The feedback from the pilot study was useful, a number of respondents pointed out that a few of the items were confusing, in particular, they drew attention to one item from the resilience scale which read: "*I can be on my own, so to speak, at work if I have to*." They felt that the statement was rather confusing and ambiguous, following further consultations with a number of academics in the field of organisational behaviour the item was dropped from the final version of the questionnaire. Double-barrelled questions (MacKenzie & Podsakoff, 2012) were avoided while potential respondents were informed unequivocally that anonymity would be guaranteed. In fact, the University's strict ethical protocols insist that responses are treated with utmost confidentiality.

According to MacKenzie and Podsakoff (2012), the provision of anonymity reduces the risk of socially desirable responses. The fact that the survey was administered online also served to reinforce the message of anonymity. 'Psychological separation' (Podsakoff et al., 2003) was sought by using different anchor points in some instances. In order to limit potential biases due to other sources, such as implicit theories and consistency motif, data for some additional measures were collected but not used in the study per se. For instance, although the main focus of this study was on autonomous reflexivity, data were collected for the other three modes of reflexivity as well as the 'interests' associated with those modes. Furthermore, the statements examining the modes of reflexivity are by nature abstract making it difficult for implicit theories to affect the measured relationships. Finally, fractured reflexivity was retained to act as a control and potentially as the marker variable. The *ex post* statistical approach (Chang et al., 2010) employing a marker variable for examining CMV in the data receives attention in Chapter 4. In the sections that follow the measures are discussed, emphasis is placed on providing empirical evidence to support their suitability (e.g. validity) for inclusion in the study.

3.6 Measures

Given the strict model fit parameters accompanying the SEM techniques it is not always possible to utilise all the items of an original scale, however, it is important that these are subjected to the full rigour of the CFA to determine optimum solutions. In the sections that follow the measures and associated reliability parameters are discussed. All the items described below were responded to on a 7-point Likert type scale, unless otherwise indicated. The anchors were: *strongly disagree* (1); *disagree* (2); *slightly disagree* (3); *neither agree nor disagree* (4); *slightly agree* (5) *agree* (6); *strongly agree* (7).

3.6.1 Psychological Capital Constituents

The PsyCap (Avey et al., 2010a; Luthans et al., 2007) construct is conceptualised in the literature as a second order construct made up of 4 facets, first order constructs, constituting self-confidence (or efficacy), hope, resilience and optimism. Each of the 4 facets of the PsyCap construct is measured by 6 items in the 24 item PsyCap Questionnaire (PCQ) developed by Luthans et al. (2007), adapted from existing validated scales and meeting the inclusion criteria for PsyCap. The hope scale was adopted from the work of Snyder et al. (1996), resilience from the work of Wagnild and Young (1993), optimism from Scheier and Carver (1985), and self-efficacy from the work of Parker (1998). Whilst many studies have used a reduced 12-item version of the PCQ (see Luthans

et al., 2013 for example), for the reason that no prior validity analysis of the PsyCap measure had been performed in the UK context, the full 24 item (now 23) PCQ was used in this study.

The PCQ in its entirety is provided in the sample questionnaire in the MA. Examples of some of the items included: (a) efficacy: "*I feel confident in representing my work area in meetings with the management*"; (b) hope: "*Right now I see myself as being pretty successful at work*"; (c) resilience: "*When I have a setback at work, I have trouble recovering from it, moving on*(R)"; and (d) optimism: "*I always look on the bright side of things regarding my job*." The Cronbach alphas for the original 6 and 5-item measures respectively were computed in SPSS and were as follows: self-confidence (0.91), hope (0.91), resilience (0.90), and optimism (0.88). The Cronbach alpha for PsyCap (0.87) was calculated on the basis of the reliability of the 4 composite first order factors following the same procedure.

The PCQ was initially developed and tested in the US, it has nonetheless undergone extensive validity analysis (Luthans et al., 2013) employing samples from other cultures, including China (e.g., Luthans et al., 2008a; Luthans et al., 2005; Sun et al., 2012), Portugal (e.g., Rego et al., 2010), and Vietnam (e.g., Nguyen & Nguyen, 2012). However, no known published study has validated the PCQ in the UK context. Although the US and the UK may share cultural similarities, Luthans et al. (2005: 264) acknowledge the limitations associated with "taking the concepts and techniques developed in one culture and applied to another culture." As such, a full exploratory factor analysis of the PsyCap measures was deemed warranted.

3.6.2 Job Satisfaction

Andrews and Withey's (1976) Satisfaction Scale was used to assess the respondents' level of job satisfaction. This measure is made up of 5 items (MacDonald et al., 2014) example which included: "*How do you feel about your job*?" Responses to the items were recorded on a verbally anchored rating ranging from 1 ("*terrible*") to 7 ("*delighted*"). The Cronbach alpha of 0.80 was calculated on the basis of only 3 items following the result of factor analysis (Chapter 4 provides more details). The psychometric properties of this scale have been substantively analysed in previous studies. In a study conducted by Rentsch and Steel (1992) they found evidence supporting its reliability and validity. The instrument manifested a high degree of convergent validity with two alternative measures of overall job satisfaction – the Minnesota Satisfaction Questionnaire (MSQ) and the Job

Descriptive Index (JDI). Furthermore, strong correlations with organisational commitment, turnover intentions, and job performance were also observed, meeting the requirement of criterion-related validation. As remarked earlier, job satisfaction is most appropriately conceptualised as a self-report measure given that it taps into individuals' evaluations of how well they fit with their work environment (Gabriel et al., 2014).

3.6.3 Innovative Behaviour

Few validated scales exist in the literature to measure innovative behaviour. Perhaps one of the most widely used measurement instrument is that validated by Scott and Bruce (1994), as evidenced by the generous citation count (2227) in Google Scholar. Scott and Bruce's measure is a 6-item scale validated by respondents in an R&D environment. A key feature of this scale is the use of supervisor rather than self-ratings. Supervisors were asked to rate their subordinates on 6 items representing the extent to which they exhibit innovative behaviour. The Scott and Bruce's instrument was adapted to measure innovative behaviour in this study. In measuring innovativeness, respondents were asked to provide an overall rating on the extent they agree with, for example: "*They search out new technologies, processes, techniques, and/or product ideas*" and "*They promote and champion ideas to others*." The Cronbach alpha value of 0.90 indicated acceptable internal reliability of the 6-item measure.

3.6.4 Work Performance

Individual work related performance has different facets. Generally, studies in organisational behaviour tend to focus on general work related performance emphasising mostly productivity or efficiency. More specific individual work performance taxonomies distinguish between contextual performance, task performance and counterproductive behaviour (Koopmans et al., 2014). In this study, work performance was operationalised as task performance adapting the task performance scale from the Individual Work Performance Questionnaire (IWPQ). The IWPQ is contemporary having been rigorously validated by Koopmans and her colleagues in a recent cross-cultural study funded by the Netherlands' Organisation of Scientific Research (*ibid.*).

The questionnaire was designed as a self-rated instrument and the task performance scale is made up of 5 items anchored on a 5 point Likert-type scale, ranging from 0 (*seldom*) to 4 (*always*). Sample of the items included: "*I was able to plan my work so that I finished on time*" and "*I kept in mind the work result I needed to achieve*." The Cronbach alpha

was measured as 0.92 which indicated high internal reliability. To provide some added assurance as to the validity of the task performance scale, data on an overall performance measure were collected. This was measured by a 1-item factor, respondents were asked to rate their overall performance for the last 3 months on a scale ranging from 1-10. The correlation between the task performance and overall performance measure was high at 0.60 ($p < 0.01$).

3.6.5 Change Attitude

Change attitude was operationalised as individual fear of change using the 5-item instrument developed and validated by Weeks et al. (2004), however, anchored on a 7 rather than 5 points Likert scale. Sample of the items included: "*I feel anxious when I hear about impending changes at work*" and "*I am fearful of change*." The Cronbach alpha was 0.96 indicating good internal reliability of the measure. Fear of change can also be considered as a private event (Chang et al., 2010) for the individual where self-report perceptual measures are generally considered more fit for purpose.

3.6.6 Internal Conversation

The different modes of reflexivity or internal conversations were measured by the internal conversation indicator or ICONI for short, developed by Archer (2007a). The development of the instrument proceeded in four different stages: piloting, refining, finalising, and final, over a period of 9-12 months involving a total of 322 participants. She provides a detailed account of its development in the methodological appendix of her publication "Making our way through the world: Human Reflexivity and Social Mobility." The final version of the ICONI is made up of 13 items, each of the autonomous, meta and communicative modes of reflexivity is measured by 3 items whereas fractured reflexivity is measured by 4. Beyond the face validity of the instrument and the result of exploratory factor analysis (EFA) showing the extraction of 4 factors which accounted for 46.8% of the variance, the author of the ICONI does not provide further reliability and/or validity statistics for the measures.

The full 13-item ICONI was administered in this work. It is to be noted that inspection of the factor structure of the ICONI as published in 'Making our Way Through the World' raised doubts on the nature of the autonomous reflexivity measurement model as it did not appear to possess a conventional reflective type structure. The factor loadings provided by Archer show that the items that were supposed to measure autonomous

reflexivity did not load consistently on any of the four factors. On this basis, it was suspected that the autonomous measurement model could be formative rather than conventionally reflective in nature. The statistical procedures establishing the reliability and validity of the ICONI and associated factors are reported in Chapter 4.

3.6.7 Reflective Indicators of Autonomous Reflexivity

The factor analysis presented in the methodological appendix in Archer (2007a) raised suspicion that the items measuring the autonomous reflexivity mode would not behave as a conventional reflective measure. Based on this suspicion about the psychometric properties of autonomous reflexivity it was decided that it would be wise to err on the side of prudence and to collect additional data that could be used to validate autonomous reflexivity as a formative construct if it transpired to be the case. Guided by Archer's instructions nine 1-item measures were designed to tap into the different areas of people's lives that they care about deeply.

Archer referred to these measures as ultimate concerns and it was felt that some of those concerns could be used as the reflective measures to validate autonomous reflexivity as a MIMIC formative model. As such, respondents were asked to rate 9 concerns on a Likert type scale (1-7), concerns included: work/career, financial success, and interpersonal relationship with family and friends. Social mobility was also viewed upon as a potential candidate that could be used as a reflective indicator for autonomous reflexivity. In this study social mobility trajectory was measured as the respondents' current level of responsibility in their present organisation. Respondents were asked to indicate their level of responsibility on the basis of five fixed hierarchical descriptions ranging from line staff (1) to top management (5). However, many respondents also used the space provided in the questionnaire to provide clarity on their level of responsibility, in particular those who felt that the categories provided did not adequately reflect their role.

3.6.8 Climate of Organisational Contextual Discontinuity (COCD)

As discussed in Chapter 2, the work of Patterson et al. (2005) was drawn on to identify applicable facets of organisational climate. Based on the inclusion criteria for COCD, innovation and flexibility as well as reflexivity scales were retained from the open system's quadrant. Sample items from the innovation and flexibility scale included: "*New ideas are readily accepted here*" and "*Assistance in developing new ideas is readily available*." The reflexivity scale was made up of statements such as: "*The methods used*

in this organisation to get the job done are often discussed," and "*In this organisation, the way people work together is readily changed in order to improve performance*." To tap into the aspect of cognitive independence the autonomy scale from the human relations quadrant was retained, statements included: "*Management let people make their own decisions much of the time*," and "*It's important to check things with the boss first before taking a decision*" (R).

The literature on innovation and creativity (e.g., Amabile et al., 1996; Scott & Bruce, 1994) also emphasises the availability of resources as a key organisational determinant of innovation and creativity in the work place. Thus, the construct 'organisational resources' was operationalised by the scale used in Scott and Bruce's (1994) study of innovative behaviour and statements included: "*There are adequate resources dedicated to innovation in our organisation*," and "*There is adequate time available to pursue creative ideas here*." The Cronbach alphas for the respective facets of COCD were as follows: innovation and flexibility (0.94), organisational reflexivity (0.92), and resources (0.88). It is to be noted that following factor analysis 3 items were dropped from the autonomy measure and thus internal reliability check was not needed. Factor analysis procedures and further analytical details are discussed in the next chapter.

3.6.9 Control Variables

This study is probably the first one to attempt to investigate the empirical relationships between Archer's modes of reflexivity and their outworks. As such, there were no precedents that could be used as guides for choosing the most appropriate control variables. Therefore, the PsyCap literature was relied on for guidance given that it is also concerned with the cognitive properties of individuals. Thus, inspired by the recent work of Luthans et al. (2013), the effects of education, tenure in current post, tenure in current organisation, age, and sex were controlled for. From the onset the term gender was preferred; however some respondents pointed out the socially constructed nature of the word 'gender' and suggested sex as a less ambiguous term. The effects of fractured and meta-reflexivity respectively were also controlled for. Although the main interest was in autonomous reflexivity, the inclusion of fractured reflexivity as a control variable has both theoretical as well as methodological value.

Theoretically, although relationships between fractured reflexivity and the various outworks have not been explicitly theorised, it was expected that these would display contrasting results in relation to those of autonomous reflexivity. Reading from Archer

does not reveal any associations between meta-reflexivity and psychological resources. However, meta-reflexivity is also associated with contextual discontinuity, and unlike fractured reflexivity, it seems to promote normal functioning albeit drawing on resources qualitatively different to those of autonomous reflexivity. The inclusion of meta-reflexivity as a control variable thus potentially helps to illuminate the unique contribution of autonomous reflexivity to the variance extracted in the dependent variables, over and above the contribution of meta-reflexivity, and the other control variables for that matter.

Furthermore, the inclusion of meta-reflexivity pre-empts a potential limitation of the study in so far as it removes the element of guess work in terms of the impact of meta-reflexivity on the dependent variables. As a methodological tool, the inclusion of the other modes of reflexivity in the questionnaire potentially reduces the likelihood of social desirability. In general, the items in the ICONI tend to be rather abstract such that the risk of method bias due to implicit theories (MacKenzie & Podsakoff, 2012) is greatly attenuated. In addition, the specific inclusion of fractured reflexivity has methodological value in terms of statistically controlling for common method bias. Based on the foregoing discussions and the understanding that fractured reflexivity would be unrelated to some of the constructs in the study, its potential utility as a 'marker variable' is further strengthened.

3.6.10 Instrumental Variables

Instrumental variables are exogenous variables that are used to identify a non-recursive or feedback SEM model. It has been suggested at H_{11} that autonomous reflexivity and the experience of contextual discontinuity in the workplace would probably share in a reciprocal relationship. Testing this hypothesis with cross-sectional data calls for a non-recursive, path analytic model and hence the need for instrumental variables. Thus, in addition to their controlling functions and as well as with the intention of keeping the questionnaire to a manageable length, some of the variables retained as controls were recruited for their potential to serve as instrumental variables for AR and COCD respectively. For instance, fractured and meta-reflexivity as well as education were identified as potential instrumental variables for autonomous reflexivity. The potential of age and tenure in post as exogenous variables for COCD was recognised. In addition, data on spirituality were also collected. This was measured on a 7-point Likert-type scale and respondents were asked to rate the importance of spirituality to them. This was on the

assumption that spirituality would function as an exogenous variable in relation to the experience of COCD. Validation of the non-recursive model and instrumental variables are further addressed in Section 5.5.

3.7 Chapter Summary

Data screening to make sure that they are fit for purpose a priori to any formal analysis can be a time consuming business, but nonetheless time well spent. Quantitative approaches are not known for their flexibility, and so, ensuring that the right questions are asked in the questionnaire and that the sample frame is appropriate for the study are some of the key criteria that must be given careful a priori consideration. The confidence in the findings depends in large parts on the quality of these anterior processes. In this chapter these processes have been described with an accentuated emphasis on issues relating to common method bias. In the next chapter the statistical procedures for controlling common method variance are detailed, but first the measurement models receive further attention.

Chapter Four: Analytical Procedures – Measurement Models

4.1 Introduction

This work was tasked with investigating the relationship between a number of variables, thus, drawing on the guidance provided by Hair et al. (2010), a number of multivariate techniques were employed to conduct the analyses. In this chapter details of the different analyses, estimation techniques, and applicable software packages, alongside the specificities of the measurement models, are discussed.

4.2 Measurement Models Taxonomy

The measurement model specifies the relationship between constructs and measures (Diamantopoulos et al., 2008). Generally speaking, two different measurement models using multiple indicators of latent constructs have been mentioned in the SEM literature (Jarvis et al., 2003). When measures are used to examine the underlying construct that is unobservable, the measures are referred to as reflective indicators or effect indicators (Edwards & Bagozzi, 2000). Measurement models comprising of reflective indicators and reflective constructs are termed as reflective measurement models. Thus, indicators are seen as functions of the latent variable, whereby changes in the latent variable are reflected (i.e. manifested) in changes in the observable indicators (Diamantopoulos & Siguaw, 2006). However, as Edwards and Bagozzi (2000) observe, not all latent constructs are entities that are measurable with a battery of positively correlated items.

A less common, but equally plausible approach is to combine a number of indicators to form a construct without any assumptions as to the patterns of inter-correlation between them (Coltman et al., 2008). In these instances, the indicators are known as formative (or causal); it is changes in the indicators that determine changes in the value of the latent variable rather than the other way round (Jarvis et al., 2003). Thus, compared to the underlying one-dimensional nature of reflective measures, formative measurement provides a means of modelling a construct from diverse and potentially disparate set of observable phenomena (Cenfetelli & Bassellier, 2009). A typical example of a formative construct often cited in the literature is socioeconomic status (SES) (Diamantopoulos & Winklhofer, 2001), which is formed by a combination of education, income, occupation, and residence (Howell et al., 2013). Diamantopoulos and Siguaw (2006) have observed that in nearly all cases where latent variables are utilised in organisational research these are measured using reflective (or effect) indicators, nonetheless, according to Coltman et

al. (2008), the formative view is gaining traction in economics and sociology. The potential of an alternative measurement model has been accompanied by an increasing number of scholars questioning the common assumption of a reflective measurement model used in much of the empirical studies. Indeed, Diamantopoulos et al. (2008) remark that the unquestioning use of the reflective specification according to classical theory can bring problems.

The failure to correctly specify the measurement model can lead to different conclusions about the empirical relationships between latent constructs (Jarvis et al., 2003), as Diamantopoulos puts it, "incorrect specification leads to parameters being under-estimated or over-estimated as the case may be" (2010: 91). Empirical work in the area of measurement model specification has shown that a large body of work, particularly in the marketing literature, may have specified reflective measures in error. The study by Jarvis et al. (2003) is instructive revealing that as many as 28% of the latent constructs with multiple indicators published in the top marketing journals have been incorrectly specified as reflective when they should have been formative. Comparable findings can also be found in the information systems (IS) literature with Petter et al. (2007) asserting that approximately 30% of the constructs previously employed in IS research might best be modelled as formative rather than as reflective. However, the retrospective evaluation of measurement models seems to have fuelled the flame of what has been duped the formative versus reflective controversy (Baxter, 2009). Much of the controversy surrounding formative construct relates to its validity, in particular, scholars have challenged the approach of evaluating the formative index by relating it to other constructs arguing that a scale validity should be established independently for the construct (Rossiter, 2002).

Furthermore, the meaning and interpretation of the 'disturbance' term associated with the formative construct is still the topic of some debate (Cenfetelli & Bassellier, 2009; Diamantopoulos, 2006). It is not the intention of this work to add to this debate, nevertheless, the notion that latent constructs are not inherently formative or reflective and the choice rests on theoretical considerations, as pointed out by Howell et al. (2007), seems a reasonable observation to make. This point is also echoed sharply by Baxter (2009) concluding his essay by urging researchers to clarify conceptualisation issues before specifying models. He emphasises that, "this necessity to carefully consider underlying issues is more substantive than the formative versus reflective controversy" Baxter (2009: 1377). The framework for assessing reflective and formative models

presented by Coltman et al. (2008) (see Table 8) is contemporary and is in the spirit of capturing the necessary theoretical and empirical aspects required to design and validate measurement models. The recommendations in Table 8 were relied on to explore the underlying measurement structure of the ICONI discussed later in this chapter.

Table 8: Framework for Assessing Reflective and Formative Models

Considerations	Reflective model	Formative model	Relevant literature
Theoretical considerations			
1. Nature of construct	Latent construct exists - Latent construct exist independent of the measures used	Latent construct is formed - Latent construct is a combination of its indicators	Borsboom et al. (2003); Borsboom et al. (2004)
2. Direction of causality between items and latent construct	Causality from construct to item - Variation in construct causes variation in item measures - Variation in item measures does not cause variation in the construct	Causality from items to construct - Variation in construct does not cause variation in item measures - Variation in item measures causes variation in the construct	Bollen and Lennox (1991); Edwards and Bagozzi (2000); Rossiter (2002); Jarvis et al. (2003)
3. Characteristics of items used to measure the construct	Items are manifested by the construct - Items share a common theme - Items are interchangeable - Adding or dropping an item does not change the conceptual domain of the construct	Items define the construct - Items need not share a common theme - Items are not interchangeable - Adding or dropping an item may change the conceptual domain of the construct	Rossiter (2002); Jarvis et al. (2003)
Empirical considerations			
4. Item intercorrelation	Items should have a high positive intercorrelations - Empirical tests: assessing internal consistency and reliability by Cronbach alpha; average variance extracted; and factor loadings	Items can have any pattern of but should possess the same directional relationship - Empirical tests: no empirical assessment of indicator reliability possible; various preliminary analyses	Cronbach (1951); Nunnally (1994); Churchill Jr (1979); Diamantopoulos and Siguaw (2006)
5. Item relationships with construct antecedents and consequences	Items have similar sign and significance of relationships with the antecedents/consequences as the construct - Empirical tests: establishing the content validity by theoretical considerations, assessing convergent and discriminant validity empirically	Items have similar sign and significance of relationships with the antecedents/consequences as the construct - Empirical tests: establishing the content validity by theoretical considerations, assessing convergent and discriminant validity empirically	Bollen and Lennox (1991); Diamantopoulos and Winklhofer (2001); (Diamantopoulos & Siguaw, 2006)
6. Measurement and error collinearity	Identify error term in items is possible - Empirical test: identifying and extracting measurement error by CFA	Identifying error term not possible if model estimated in isolation - Empirical test: using the vanishing tetrad test - Collinearity should be ruled out (VIF)	Bollen and Ting (2000); Diamantopoulos (2006)

4.3 Analytical and Estimation Techniques

The analytical technique was considered in light of the violation of the univariate normality assumption revealed by the initial analyses conducted in SPSS. Thus, prior to examining the structure of the measurement models the multivariate normality of the overall measurement model was inspected. The multivariate kurtosis value (or Mardia's coefficient) was 572.66 accompanied by a critical ratio of 74.68. Multivariate normality is assumed in instances where Mardia's coefficient does not exceed its critical value (Mardia, 1975), in the above case this requirement was clearly not met. The SEM literature discusses a variety of strategies for dealing with violations of multivariate normality. This normally involves the use of estimation techniques that do not assume asymptotic data distribution. There are several estimation procedures including maximum likelihood (ML), least squares (LS), unweighted least squares (ULS), generalized least square (GLS), and asymptotic distribution free (ADF) (Weston & Gore, 2006), and some procedures are unique to particular statistical packages. ML and GLS methods assume multivariate normality, whereas LS and ADF do not (Weston & Gore, 2006).

In the context of the statistical package AMOS (Analysis of Moment Structures) (Arbuckle, 2003), the usefulness of ML technique in estimating non-normal distributions are normally discussed versus the ADF technique. In general, the results of simulation studies involving different techniques have provided support for the use of some variant of the ML procedure over other methods. For instance, Olsson et al. (2000) found that ML compared to GLS under conditions of misspecification provides more realistic indexes of overall fit and less biased parameter values for paths that overlap with the true model. Furthermore, pitching ML directly against ADF, Savalei and Bentler (2005) found ADF to be the worst performer unless the sample size was very large, thus, they recommended the direct ML method with appropriate corrections as a reliable approach to handling incomplete nonnormal data. Gold et al. (2003) seem to concur suggesting that when data are nonnormal ML methods are still preferable to ADF but recommended that they should be used in conjunction with robust standard errors and rescaled chi-square statistics, or with the Bollen-Stine (BS) and naïve bootstrap (Enders, 2001). With the weight of empirical findings supporting the use of the ML procedure to estimate nonnormal distribution the procedure recommended by Gold et al. (2003) was adopted, AMOS offers both procedures for complete data (Enders, 2001).

4.4 Model and Construct Validity

4.4.1 Model Fit

Assessing data fit within a structural equation model is the most essential part of the modeling process (Heene et al., 2012). The objective of the model fit evaluation is to determine whether the associations among measured and latent variables in the estimated model adequately reflect the observed associations in the data (Weston & Gore, 2006). In SEM the fit is operationalised as an evaluation of the degree of discrepancy between the true population covariance matrix and that implied by the model's structural and nonstructural parameters (Mueller & Hancock, 2008). The two most popular ways of evaluating model fit are those that involve the chi-square (χ^2) goodness-of-fit statistics and the use of indices of approximate fit indices (AFIs) (Hu & Bentler, 1999; Millsap, 2007). The chi-square statistic is sometimes bundled together with similar statistics and collectively termed the absolute fit indices (Hooper et al., 2008). The commonality among these measures is that they all seek to determine how well *a priori* model fits the sample data (McDonald & Ho, 2002) and demonstrate which proposed model has the most superior fit.

However, the chi-square value is the traditional measure for evaluating overall model fit (Hooper et al., 2008) and it is the fundamental measure of differences between the observed and the estimated covariance matrices (Hair et al., 2010). It employs a conventional null hypothesis for the goodness of fit test (Barrett, 2007) between two groups (Cheung & Rensvold, 2002). The decision to accept or reject the hypothesis of fit is based on the probability level associated with the χ^2 value (Fan et al., 1999), a good model fit would provide an insignificant result at 0.05 threshold (Barrett, 2007).

While the chi-squared test retains its popularity as a fit statistic, there exist a number of severe limitations in its use (Hooper et al., 2008). As is the case with statistical testing in general, such an assessment of model fit is confounded with sample size; the power of the test increases with increases in the sample size used in the analysis (Fan et al., 1999). As a result, with large samples, even small deviations from well fitting models will be statistically significant (Jackson et al., 2005). However, when the sample size is small the test may fail to detect meaningful differences between the sample covariance matrix and the covariance produced from the specified model (Fan et al., 1999) resulting in Type I

error[1] estimates for small sample chi-square statistics (Parshall et al., 1999). Furthermore, the chi-square test assumes multivariate normality and severe deviations from normality may result in model rejections even when the model is properly specified (McIntosh, 2007). Browne et al. (2002) have also showed that models with more reliable indicators tend to engender greater sensitivity for detecting non-zero residuals and therefore have a higher probability of failing the chi-square test.

Due to the generally recognised unsatisfactory nature of the χ^2 statistic for model fit assessment, a variety of alternative indexes for assessing model fit have been developed (Fan et al., 1999). Examples of alternative absolute fit indices commonly cited alongside the χ^2 value include root mean square error of approximation (RMSEA), root mean square residual (RMR), and standardised root mean square residual (SRMR). The fit indices taxonomy also includes incremental and parsimonity fit indices respectively. In contrast to absolute fit, an incremental fit index measures the proportionate improvement in fit by comparing a target model with a more restricted, nested baseline model (Hu & Bentler, 1999). For these models, the null hypothesis is that all variables are uncorrelated (McDonald & Ho, 2002) and examples include the comparative fit index (CFI) (Bentler, 1990), and the normed and nonnormed fit indices (NFI and NNFI) (Mueller & Hancock, 2008) respectively.

The parsimony fit indices for their part evaluate the overall discrepancy between the observed and implied covariance matrices while taking into account a model's complexity (Mueller & Hancock, 2008). Paradoxically, this results in a less rigourous theoretical model that produce better fit indices (Crowley & Fan, 1997). Three parsimony-based fit indices that appeared early in applications of this methodology are the chi-square/degrees of freedom (χ^2/df) ratio, the adjusted goodness-of-fit (AGFI), and the parsimonious fit index (PFI) (Williams & Holahan, 1994). Given the plethora of fit indices (Hooper et al., 2008), the question of goodness-of-fit is resolved by different investigators in quite different ways (McDonald & Ho, 2002). It has been suggested that a large number of these should be reported as we do not know how to use any of them (McDonald & Ho, 2002).

However, Hooper et al. (2008) suggest that reporting should include the chi-square statistic, its degrees of freedom and p value, the RMSEA and its associated confidence

[1] Probability of rejecting the null hypothesis when it should be accepted

interval, the SRMR, the CFI and one parsimony index such as the PNFI. According to them, these indices have been found to be most insensitive to sample size, model specification, and parameter estimates. The utility of these indices in determining model fit rests on the application of what is termed in the methods literature as cutoff values (Marsh et al., 2004). For most of the incremental fit statistics, accepting models producing values of 0.90 became the standard practice in the early 1990s (Hair et al., 2010). However, after conducting Monte Carlo simulations, Hu and Bentler (1999) provided a number of suggestions as to possible AFI cutoffs that may be indicative of a well fitting SEM (Goffin, 2007) which were generally considered more stringent than those previously widely adopted (Lance et al., 2006). These thresholds were presented as what has become known as the two-index presentation strategy (Fan & Sivo, 2005). This always includes the SRMR with NNFI, RMSEA or the CFI (Hooper et al., 2008). The various combinations are summarised in Table 9.

Table 9: Hu and Bentler's Two-Index Presentation Strategy

Fit Index Combination	**Combinatorial Rules**
NNFI and SRMR	NNFI of 0.96 or higher and an SRMR of 0.09 or lower
RMSEA and SRMR	RMSEA of 0.06 or lower and a SRMR of 0.09 or lower
CFI and SRMR	CFI of 0.96 or higher and a SRMR of 0.09 or lower

The prevalence of relying on approximate fit indices (Millsap, 2007) rather than chi-square test in assessing model fit in SEM is not without controversy and a growing number of scholars have expressed concern over their continued use. Indeed, according to McIntosh (2007) the hope for establishing a single set or reference list of AFI criterion or cutoff values, uniformly applicable across all SEM investigations, has been seriously eroded by several recent Monte Carlo simulation studies (e.g., Beauducel & Wittmann, 2005; Fan & Sivo, 2005; Marsh et al., 2004; Yuan, 2005). Barrett (2007) draws on the findings of these studies to launch perhaps the most scathing criticism on AFI to date. In this work Paul Barett argues persuasively against the continued use of approximate indices (Millsap, 2007) recommending that **ALL** such indices should be banned from ever appearing in any paper as indicative of model 'acceptability' or 'degree of misfit' (McIntosh, 2007).

Although most of the scholars who have reviewed Barrett's work have applauded his intervention as brave and timely (e.g., Goffin, 2007; Markland, 2007), the general

consensus remains that the idea of approximate fit in structural equation modelling is useful scientifically and that AFIs have a role to play in the assessment of model fit (Millsap, 2007). As Markland concludes:

> I think it is still advisable that authors should normally adopt the criteria proposed by Hu and Bentler (1999), unless they can present a good case for a more liberal approach. The Hu and Bentler (1999) criteria are at least more stringent than previous recommendations and are therefore less likely to lead to the acceptance of ill-fitting models (2007: 856).

In light of the forgoing analysis, the universally accepted reporting procedures for model fit, consistent with the Hu and Bentler two-index presentation strategy and as supplied in Table 9 will be adopted in this thesis alongside the recommdendations made by Hooper et al. (2008) also discussed above.

4.4.2 Construct Validity

The fit estimates are used to attest to the validity of the measurement model, however, in order to test structural relationships establishing construct validity is a prerequisite (Doty & Glick, 1998). Construct validity is the extent to which a set of measured items actually reflects the theoretical latent construct those items are designed to measure (Hair et al., 2010). Bagozzi et al. (1991) identify convergent validity, discriminant validity and method bias as deserving of attention in the field of organisational behaviour.

4.4.2.1 Convergent Validity (CV)

CV is achieved when indicators of a specific construct share a high proportion of variance in common, it is therefore the degree to which multiple attempts to measure the same concept are in agreement (Bagozzi et al., 1991). Hair et al. (2010) direct attention to three different methods for analysing convergent validity and these are: factor loadings, average factor extracted (AVE) and the classical internal reliability or construct reliability. Loading estimates of 0.7 or higher are considered adequate as this suggests that the latent factor explains at least 50% of the variance in the item. Moreover, loadings as small as 0.5 may also be considered as significant however with more variance being explained by the residuals rather than the latent construct. Average variance extracted (AVE) employs the same logic as factor loadings and is calculated from the following formula:

$$\mathbf{AVE} = \frac{\sum_{i=1}^{n} L_i^2}{n} \qquad \textbf{Equation 1}$$

The L_i represents the standardised factor loading and i is the number of items. Effectively, AVE is a measure of the average of the squared standardised loadings. According to Hair et al. (2010) an AVE of 0.5 or higher suggests adequate convergence.

4.4.2.2 Construct Reliability (CR)

CR is a measure of the squared sum of loadings (L_i) for each construct and the sum of the error variance terms for a construct (e_i) and is calculated from the following formula:

$$\mathbf{CR} = \frac{(\sum_{i=1}^{n} L_i)^2}{(\sum_{i=1}^{n} L_i)^2 + (\sum_{i=1}^{n} L_i)^2} \qquad \textbf{Equation 2}$$

Acceptable values for construct reliability also commonly referred to as the Cronbach alpha start from 0.6 in some cases, however, a value of 0.7 or higher is generally considered as a good measure of internal reliability.

4.4.2.3 Discriminant Validity (DV)

DV is the extent to which a construct is truly distinct from other constructs such that high discriminant validity provides evidence that a construct is unique and captures some of the phenomena other measures do not (Hair et al., 2010). Analysing discriminant validity is dominated by three approaches in the literature (Shiu et al., 2011). The first procedure entails the comparison of chi-square values between two competing models; an unconstrained CFA model and a nested CFA model, where the correlation between the target pair of constructs is constrained to unity. The chi-square difference test between the two models tests the null hypothesis that the correlation between the two constructs is equal to 1. Thus, a non-significant chi-square difference test i.e. $p > 0.05$ rejects the null hypothesis and affirms that there is a significant difference between the two constructs.

This procedure was proposed by Bagozzi and Phillips (1982), however, critics have argued that it does not provide strong evidence of discriminant validity in practice (Hair et al., 2010). The second procedure is based on examining the confidence interval for the estimated correlations between pairs of constructs (Shiu et al., 2011). A 95% confidence interval for the correlation between two constructs that does not contain unity indicates that two constructs have achieved discriminant validity, if the confidence interval contains zero, then one can assert that the pair of constructs are "totally distinct or nearly so" (Bagozzi et al., 1991). The third test was proposed by Fornell and Larcker (1981) and it entails comparing the squared correlation between a pair of construct (average shared

variance (ASV) and maximum shared variance (MSV)) against the AVE of each of the two constructs (Shiu et al., 2011). The logic here is based on the idea that a latent construct should explain more of variance in its measures that it shares with another construct (Hair et al., 2010). This test is seen by many as being more rigorous, indeed Shiu et al. (2011) observed the preference of Fornell and Larcker's approach in three of the leading marketing journals, thus, Hair and his colleagues assert that passing this test is associated with good evidence of discriminant validity.

A fourth method of investigating discriminant validity is provided by Hair et al. (2010). They argue that discriminant validity also means that individual measured items should represent only one latent construct. Based on this rationale the presence of cross-loadings indicates a validity problem. Based on the forgoing the conditions leading to construct validity can be briefly summarised as follows: (1) **reliability**, CR > 0.70; (2) **convergent validity**, AVE > 0.50; (3) **discriminant validity**, AVE > MSV, and AVE > ASV.

4.5 Validating the Reflective Measurement Models

In the sections that follow the measurement models are examined. Due to the specificities of the study, the statistics are reported in terms of four sub measurement models. Once the measurement statisitics were verified at the sub-model level these were brought back together in a modified overall measurement model (see Figure 20 in Appendix (II)) and a final CFA was performed from which other SEM statistics, such as overall model fit, multivariate normality, and discriminant validity were assessed prior to the examination of hypothesised structural realtionships. Given the relative complexity of the study, this approach afforded the opportunity to understand and address pertinent issues at the level of the sub-models without compromising the validity of the overall measurement model.

4.5.1 PsyCap Components (PCC) Measurement Model

To perform the CFA for Model-PCC, four first order variables (self-confidence, hope, resilience, and optimism) were constructed as reflective type constructs. The observed items were fitted to their respective latent variables and the latent variables were free to correlate with each other (or co-vary). Path estimate is a measure of the relationship between items and constructs, Hair et al. (2010) suggest that loadings should be at least 0.50 and ideally 0.70. Using 0.50 as the minimum threshold, inspection of the standardised regression weights from the initial CFA model revealed 3 items to be problematic (Opt2, Opt5 and Res1) failing to meet the 0.50 loading threshold, closer

inspection revealed that those were the re-coded items. The CFA for the Model-PCC also displayed poor estimates of model fit: χ^2 (224) = 955.50, p < .001, NNFI = 0.83, CFI = 0.87, RMSEA = 0.10, SRMR = 0.08, thus failing to meet the Hu and Bentler's two-index presentation strategy.

The three items were dropped and the model re-estimated, the loading of the items ranged from 0.70 to 0.92 and were all significant at 0.01 level. Improvement in the model fit was also observed: χ^2 (162) = 558, p < .01, NNFI = 0.90, CFI = 0.92, RMSEA = 0.08, SRMR = 0.07. However, the model fit estimates were still not meeting the conditions of the two index strategy. Hair et al. (2010) provide guidance as to how to improve model fit, firstly they suggest that standard residuals between 2.5 and 4 are deserving of attention. They recommend dropping one of the items associated with a residual greater than 4. Secondly, they advised that modification indices of approximately 4 or greater suggest that the fit could be improved significantly by freeing the corresponding path to be estimated.

Inspection of the standardised residual covariance matrix revealed 3 items that were associated with a residual greater than 4. Those items (Con1, Hop1, and Hop3) were removed one at a time, the model only achieved acceptable fit estimates once all of the 3 items had been removed: χ^2 (113) = 299, p < .01, NNFI = 0.93, CFI = 0.96, RMSEA = 0.07, SRMR = 0.04. Table 11 records the loadings for the items retained for each of the four constructs.

Table 10: Cross loading values – Model-PCC

	Factor			
	Self-confidence	**Resilience**	**Optimism**	**Hope**
Con2	**.794**			
Con3	**.761**			
Con4	**.737**			.307
Con5	**.707**			
Con6	**.731**			
Hop2				**.634**
Hop4	.344		.361	**.679**
Hop5	.343			**.743**
Hop6	.303			**.681**
Res2		**.689**		
Res3	.316	**.654**	.348	
Res4		**.851**		
Res5	.340	**.611**	.301	
Opt1		.344	**.618**	
Opt3		.304	**.846**	
Opt4			**.668**	.455
Opt6			**.617**	

Having established the validity of Model-PCC (see Figure 21 in Appendix (II)), the validity of the first order constructs was then assessed. Data were extracted from the correlation matrix and standardised regression weights table to calculate the validity parameters using an Excel spreadsheet obtained from Gaskin (2012b), these are presented in Table 11.

Table 11: Construct Validity – Model-PCC

	CR	AVE	MSV	ASV
SCONF	0.913	0.677	0.498	0.406
OPTI	0.875	0.638	0.545	0.437
RESI	0.898	0.688	0.482	0.457
HOPE	0.905	0.705	0.545	0.500

Based on the values presented in Table 11, it can thus be concluded that the constructs were valid as the items adequately measured the constructs they meant to. The guidelines regarding discriminant validity proposed by Hair and his colleagues were also heeded and thus cross loading was assessed. The results of the analysis are also presented in Table 10; values lower than 0.30 have been omitted. As can be observed, all items loadings on the factor they meant to measure were superior to any cross-loadings. These results add further evidence supporting the discriminant validity of the constructs. The measurement model for the dependent variables was examined next. The main dependent variables for this study were task performance, job satisfaction, innovative behaviour and fear of change.

4.5.2 Dependent Variable Measurement model (Model-D)

The model was estimated using the ML procedure and BS Bootstrap, and by setting the threshold for modification indices at 20. The fit estimates for the initial model with all the items fitted their respective first order constructs did not quite meet the Hu and Bentler standard: χ^2 (183) = 552.90, $p < .001$, NNFI = 0.91, CFI = 0.94, RMSEA = 0.08, SRMR = 0.04. In order to improve the model fit, four items were dropped that fell short of the required threshold value, and these were Perf1, Chg5, JSat1, and JSat4, following which the model was re-estimated. Inspection of the standardised residual variance matrix did not reveal any problematic residuals, thus, the modification indices were examined in order to identify how the overall fit of the measurement model could be improved. Inspection of the residual covariance modification index suggested the fit of the 4-factor model could be improved if the residuals of Ino2 and Ino6 as well as Ino4 and Ino5 of the

innovativeness scale, in addition to Perf2 and Perf3 of the task performance construct were allowed to correlate.

Correlation of residuals implies that there is some shared influence on a particular pair of items that is not common to the rest of the factor (Mattick et al., 2004). Examination of items Ino2 and Ino6, Ino4 and Ino5, and Perf2 and Perf3 suggested that the 3 pairs of items could be allowed to correlate as the corresponding statements were approximately equivalent but presented in slightly different ways. For instance, Ino2 and Ino6 relate broadly to idea generation, for some people the distinction between creativity and innovativeness is a subtle one and the two are often confounded. Ino4 and Ino5 are concerned with the implementation of ideas whereas Per2 and Per3 are roughly concerned with setting priorities (see questionnaire in Appendix (I); Q1.8 and Q 1.9).

The final version of the 4-factor model (Figure 22 in Appendix (II)) incorporating these changes produced a relatively decent fit: χ^2 (111) = 254.45, $p < .01$, NNFI = 0.95, CFI = 0.97, RMSEA = 0.06, SRMR = 0.04. Inspection of the standardised residual matrix revealed that the residual covariances were generally small with a maximum value of 1.90. The Bollen-Stine Bootstrap was significant at $p = 0.01$ indicating that the model was correct. The construct validity was then analysed by following the procedures outlined above. The results of the analysis are reported in Table 12.

Table 12: Construct Validity – Model-D

	CR	AVE	MSV	ASV
TPERF	0.919	0.740	0.486	0.237
INOV	0.904	0.614	0.312	0.182
FOC	0.957	0.848	0.048	0.036
JOSAT	0.795	0.566	0.486	0.274

Accordingly all the validity statistics were satisfied suggesting that the constructs were conceptually valid. In Table 13 the loadings of the items on all the factors are shown with values lower than 0.30 suppressed. As it can be observed, no significant cross-loadings were present. Once the construct validity was achieved the composite scores for the 1st order constructs were imputed and saved for future analysis.

Table 13: Cross loading – Model-D

	Factor			
	Innovativeness	**Fear of Change**	**Task Performance**	**Job Satisfaction**
Ino1	**.747**			
Ino2	**.806**			
Ino3	**.678**			
Ino4	**.706**			
Ino5	**.779**			
Ino6	**.834**			
Chg1		**.864**		
Chg2		**.939**		
Chg3		**.944**		
Chg4		**.897**		
Perf2			**.795**	
Perf3			**.863**	
Perf4			**.820**	.359
Perf5			**.814**	
JSat2				**.700**
JSat3	.314		.360	**.661**
JSat5			.346	**.583**

4.5.3 COCD Measurement Model (Model-COCD)

Model-COCD was constructed by fitting the items to their respective first order constructs representing the four facets of COCD. Organisational reflexivity (OREF) was fitted with 5 items and organisational flexibility and innovation (OFLEX) with the original 6 items, organisational resources (ORES) with 6 items and organisational autonomy (OAUTO) with 5. The initial fit estimates were poor: χ^2 (183) = 1073.66, $p < 0.01$, NNFI = 0.82, CFI = 0.85, RMSEA = 0.12, SRMR = 0.11. An inspection of the standardized regression weights revealed that the re-coded items were problematic across the two measures where they featured: OAut3, $\beta = .19$; OAut4, $\beta = .23$; OAut5, $\beta = .13$; Res3, $\beta = .18$; Res4, $\beta = .18$. These observations are consistent with the debate in the literature discussed in Chapter 2 as to the value of designing items as reverse-coded.

Given the β values, the case to drop the re-coded items was made strong enough. However, the theoretical understanding of the role of autonomy supportive climate in fostering autonomous behaviour dictated that the 2-item measure for autonomy be retained. It was felt that the experience of high autonomy in the work place would be closely associated with the idea of a climate of organisational contextual discontinuity (COCD); on this basis the 2-item measure of autonomy was kept but not included in the CFA as it violated the requirement for number of measurement items (at least 3). The fit estimates for the 3-item reduced scales of COCD were as follows: χ^2 (98) = 386, $p < 0.01$, NNFI = 0.93, CFI =

0.94, RMSEA = 0.09, SRMR = 0.04. The fit estimates did not quite fulfil the specifications of the two-index strategy, an inspection of the standardised residual matrix suggested that all the values were within acceptable limits.

With the threshold for the modification indices set at 20, the covariance matrix was examined; this revealed a high-cross loading of item ORef1 on OFLEX construct. Closer inspection of the item revealed that it could have just as well been associated with the OFLEX facet; on this basis this item was excluded from further analysis. Cross-loading of item OFlex1 onto the OREF construct was also observed, this item was also dropped. Further examination of the residual covariance modification index also suggested that the fit of the 3-factor model could be improved if the residuals of OFlex2 and OFlex4 and those of ORes2 and ORes5 were allowed to correlate.

The final version of the 3-factor model (Figure 23 in Appendix (II)) incorporating these changes produced a relatively good fit: χ^2 (49) = 160.52, p <0.01, NNFI = 0.96, CFI = 0.97, RMSEA = 0.08, SRMR = 0.03. Inspection of the standardised residual matrix suggested that the residual covariances were small, the maximum being 0.196 (see Table 47 in MA). The BS Bootstrap was significant at p = 0.01 indicating that the model was correctly fitted. The construct validity of the latent variables was then evaluated by following the established procedures; the calculated parameters are produced in Table 14.

Table 14: Construct Validity – Organisational Climate

	CR	**AVE**	**MSV**	**ASV**
ORES	.876	.705	.684	.649
OREF	.915	.730	.691	.653
OFLEX	.940	.759	.691	.687

In Table 15 the factor loadings for all the items are shown with values lower than 0.3 suppressed, as it can be observed no significant cross-loadings were present.

4.6 Validating the Internal Conversation Model (Model-ICONI)

If the notion of internal conversation has received scant attention as a research interest much less empirical work exists. In this work, internal conversation was conceptualised on the basis of the internal conversation indicator (ICONI) developed by Margaret Archer. Although Archer went to considerable lengths in her biographical studies to establish the face validity of the measure, the interval reliabilities of the measures of the ICONI are yet

to be established. The only relevant statistical data that are accessible come from the exploratory factor analysis which revealed, according to Archer (2007a), the existence of four modes of internal conversation. On the basis of the limited prior knowledge on the psychometric properties of the ICONI, it was felt necessary to subject the measure to statistical rigour *a priori* to the testing of any structural relationships. Firstly, an understanding of the structure of the proposed 4-factor measure was pursued, thus, an exploratory factor analysis (EFA) of the 13-item ICONI scale was performed in SPSS.

Table 15: Factor loadings – Model-COCD

	Factor			
	Flexibility	**Reflexivity**	**Resources**	**Autonomy**
OFlex2	**.820**			
OFlex3	**.779**	.334		
OFlex4	**.804**			
OFlex5	**.755**	.385		
OFlex6	**.707**	.412		
ORef2	.317	**.791**		.311
ORef3		**.808**	.307	
ORef4	.480	**.643**		
ORef5	.381	**.778**		
OAut1				**.884**
OAut2				**.862**
ORes1	.479	.343	**.596**	
ORes2	.370	.306	**.739**	.307
ORes5			**.825**	

The EFA was guided by the step-by-step procedure detailed in Hair et al. (2010). The principal axis factoring estimation was employed as the extraction method. To retain factors the latent root criterion was employed by fixing the eigenvalue to 1 as well as the scree-test criterion. Varimax rotation method was used as the factors were not expected to correlate. The outputs were then examined and interpreted. Inspection of the correlations matrix (see Table 20) of the ICONI revealed 62 out of the 78 correlations (79%) to be significant at the 0.010 level. The fact that the proportion of significant correlations was greater than 30% suggested that sample adequacy could be inspected (Hair et al., 2010).

The Bartlett's test is a powerful test of the significance of the correlation matrix (Clark et al., 2002) and thus indicative of the adequacy of the sample at the overall level. In this case, the Bartlett's test found that when all the correlations were taken together they were significant at the 0.01 level (see Table 48 in MA). The Kaiser-Meyer-Olkin (KMO)

measure of sampling adequacy (MSA) is a measure of the degree of inter-correlation among variables, specifying the variance attributable to unique factors relative to that of the common factors (Smyth & MacLachlan, 2004). The KMO statistic for the ICONI (0.86, in Table 48 in MA) was in the acceptable range (above 0.50), as recommended in Hair et al. (2010). At the individual level, the MSA can be gleaned at from the anti-correlation matrix.

The anti-correlation matrix is presented in Table 49 in MA; the MSA values are read along the diagonal and ranged from 0.66 to 0.86, thus all values exceeded the 0.50 threshold. The output for the extraction of components is shown in Table 16. Applying the latent root criterion of retaining factors with eigenvalues greater than 1.0 (also known as the K1 rule), suggests three factors should be retained extracting a cumulative variance of 41%. However, despite its widespread use and simplicity, it is widely agreed that the K1 method is dubious (Courtney, 2013). For example, the simulation study summarizing the accuracy of various methods conducted by Ruscio and Roche (2012) determined that the K1 rule grossly overestimated the number of factors and was only correct 8.8% of the time.

Table 16: Results for the Extraction of Component Factors

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	4.352	33.476	33.476	3.862	29.708	29.708
2	1.625	12.500	45.976	1.019	7.839	37.548
3	1.122	8.633	54.609	.460	3.538	41.086
4	.863	6.636	61.245			
5	.810	6.232	67.477			
6	.750	5.773	73.249			
7	.715	5.499	78.749			
8	.682	5.249	83.998			
9	.610	4.690	88.688			
10	.469	3.611	92.300			
11	.414	3.186	95.486			
12	.339	2.605	98.092			
13	.248	1.908	100.000			

The scree test on the other hand is viewed as a more reliable approach (Hair et al., 2010). The ‘scree test’ was given its name by Cattell (1966) due to the ‘scree test’ graphical presentation, which has visual similarities to the rock debris (scree) at the foot of a mountain (Williams et al., 2012). It is derived by plotting the latent roots against the number of factors in their order of extraction to be generated. The scree test is performed by searching for an ‘elbow’ in the plot, or an abrupt transition from large to small eigenvalues (Ruscio & Roche, 2012). The scree plot is shown in Figure 5, considering

the changes in eigenvalues the 'scree test' also suggested that three factors should be retained and thus confirmed the result of the initial EFA.

The initial results of the 3-factor rotated matrix component analysis are presented in Table 17 with the factor loadings of the 13 items (note: values less than 0.3 have been supressed). Inspection of the factors provided an initial insight in the structure of the factors. Factor 1 was generally loaded by the items measuring fractured reflexivity (FR); however, it was also observed that item 2 and item 3 of the autonomous reflexivity (AR) measure also loaded strongly but negatively on factor 1. A negative factor loading suggests that the factor has the characteristic 'opposite' of whatever the observable item measures. In fact, this is consistent with the literature that views the fractured mode in contradistinction to the autonomous mode.

The items measuring meta-reflexivity (MR) loaded on factor 2. However, the factor was also loaded on by item 1 from the AF scale and item 2 from FR. The three items measuring the communicative mode loaded on factor 4. The result of the EFA was unexpected given that the ICONI was conceptualised on the basis of four discriminant facets. On the basis of this a second EFA was performed requiring the extraction of four components. Furthermore, the inconsistent pattern of loadings of the items that supposed to measure AR was of concern.

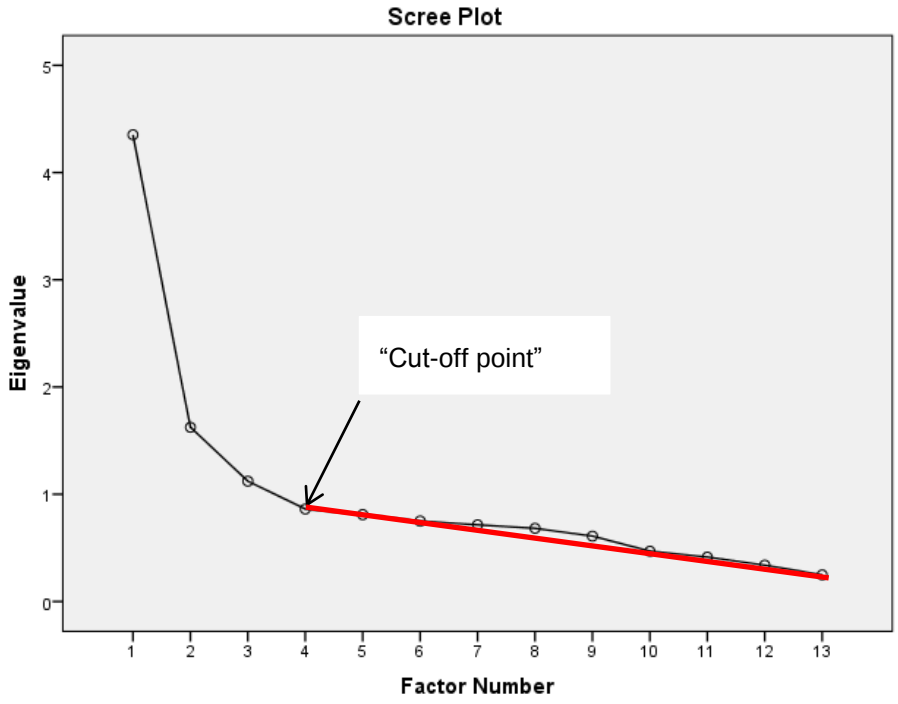

Figure 5: Scree Test for Component Analysis – Model-ICONI

Table 17: ICONI Rotated 3-Factor Matrix

	Factor		
	1	2	3
Aut1		.544	
Aut2	-.555		
Aut3	-.641		
Com1			.343
Com2			.467
Com3			.560
Met1		.747	
Met2		.387	
Met3	.307	.476	
Fra1	.422		
Fra2	.689	.369	
Fra3	.735		
Fra4	.813		

The rotated component analysis matrix of the four factor solution is shown in Table 18. Inspection of the factors revealed that the items that were supposed to load on the AR factor persisted to load on different factors and therefore provided no basis for its interpretation in relation to the conventional reflective measurement theory. The reflective measurement theory is based on the idea that latent constructs cause the measured variables (Hair et al., 2010). As such, high intercorrelations among items are desirable since high intercorrelations enhance internal consistency (Bollen & Lennox, 1991; Diamantopoulos & Siguaw, 2006).

Table 18: ICONI Rotated 4-Factor Matrix

	Factor			
	1	2	3	4
Aut1		.548		
Aut2	-.627			
Aut3			-.657	
Com1				**.371**
Com2				**.496**
Com3				**.532**
Met1		**.746**		
Met2		**.391**		
Met3		**.483**		
Fra1	**.414**			
Fra2	**.495**	.384	.453	
Fra3	**.706**		.346	
Fra4	**.455**		.688	

Inspection of the correlation matrix, see Table 20, revealed a pattern of negative correlation coefficients between the items measuring AR some of which were non-significant. This observation provided further evidence to support the multi-faceted nature of at least the autonomous mode of reflexivity as informed by Archer (2007a). In fact, inspection of the complete matrix revealed the correlations between the 13 items to be on average less than 0.50, ranging from 0.02 to 0.69. Indeed, low inter-item correlations or non-correlated items characterise measures of multi-dimensional (or formative) constructs (Jarvis et al., 2003). Further information on the nature of the measurement structure may be gleaned from internal reliability check.

Because the correlations among indicators within a formative construct do not need to be high the Cronbach alpha value is not expected to be high. Indeed, as Petter et al. (2007: 641) remark "reliability in the form of high internal consistency of indicators is actually undesirable for formative constructs." Reliability parameters for the measures of the 4 scales constituting the ICONI were as follows: fractured reflexivity (0.81); communicative reflexivity (0.45); meta-reflexivity (0.62); autonomous reflexivity (0.11). Interpretation of the EFA seems to offer support for treating FR, CR and MR as reflective constructs whilst supporting a formative structure for the AR model.

In the final step of the EFA the three items of AR were dropped and the factor analysis was run once again requesting for the extraction of three components. The results of the analysis showed that the three factors extracted a cumulative variance of 41.5%, as shown in Table 19.

Table 19: Results for the Extraction of Reflective ICONI Factors

	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Factor	**Total**	**% of Variance**	**Cumulative %**	**Total**	**% of Variance**	**Cumulative %**
1	3.437	34.371	34.371	2.966	29.664	29.664
2	1.500	15.002	49.372	.856	8.561	38.225
3	.951	9.513	58.885	.332	3.317	41.542
4	.798	7.979	66.864			
5	.743	7.431	74.296			
6	.735	7.355	81.650			
7	.649	6.493	88.143			
8	.545	5.446	93.589			
9	.360	3.598	97.186			
10	.281	2.814	100.000			

Table 20: Correlation Matrix for the ICONI Items

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Aut1	4.30	1.80	1	-.125*	-.102	.160**	-.018	.015	.415**	.214**	.246**	.078	.265**	.082	.189**
2. Aut2	4.44	1.71		1	.353**	-.205**	-.134*	-.079	-.341**	-.201**	-.302**	-.362**	-.529**	-.545**	-.460**
3. Aut3	4.22	1.84			1	-.211**	-.224**	-.050	-.232**	-.150**	-.317**	-.277**	-.507**	-.476**	-.636**
4. Com1	3.84	2.01				1	.218**	.186**	.195**	.169**	.151**	.164**	.278**	.213**	.289**
5. Com2	4.56	1.83					1	.265**	-.044	.031	.061	.227**	.178**	.260**	.218**
6. Com3	4.65	1.49						1	-.073	-.002	-.023	.165**	.095	.211**	.091
7. Met1	4.23	1.51							1	.307**	.432**	.127*	.409**	.246**	.322**
8. Met2	3.91	1.57								1	.317**	.200**	.281**	.256**	.311**
9. Met3	4.02	1.62									1	.140**	.335**	.268**	.356**
10. Fra1	3.24	1.52										1	.296**	.422**	.413**
11. Fra2	3.44	1.72											1	.608**	.693**
12. Fra3	3.45	1.63												1	.641**
13. Fra4	3.23	1.73													1

*Correlation is significant at the 0.05 level (2-tailed);

**Correlation is significant at the 0.01 level (2-tailed).

In Table 21 the item loadings for the three reflective measures of the ICONI are recorded. As can be observed, all the items that were expected to load on their respective higher order constructs loaded consistently on the three components extracted. The results of the EFAs provided much clarity on the measurement structure of the different facets of the ICONI. Beyond the inter-item correlations there are other subtleties between reflective and formative models whose consideration help to provide a more nuanced if not accurate understanding of measurement models structure. In this regard Coltman et al. (2008) offer a useful framework. Given that it was the first time that the validity of the ICONI was being placed under interrogation, application of the framework's considerations to the ICONI was considered to be the right thing to do.

Table 21: Common Factor Matrix for ICONI Reflective Constructs

	Factor		
	Fractured	Meta	Communicative
Com1			**.363**
Com2			**.515**
Com3			**.509**
Met1		**.701**	
Met2		**.426**	
Met3		**.571**	
Fra1	**.409**		
Fra2	**.659**	.410	
Fra3	**.714**		
Fra4	**.772**		

4.6.1 Analysis of the Measurement Structure of AR, MR and FR

Drawing on the initial results of the EFA in relation to the underlying structure of the autonomous measurement model in particular, the 6 considerations as instructed by Coltman et al. (2008) and recorded in Table 8 were applied to the autonomous items. This was done in order to further investigate the nature of its measurement model which appeared to be formative. Given the strong Cronbach alpha for fractured reflexivity (0.81) it was retained to play a further role in the study. In addition, even if Cronbach alpha of 0.62 for meta-reflexivity did not quite achieve the desired 0.70 mark, it was also retained. Ideally it would have been preferable to include all the reflexive modes in the study, unfortunately the Cronbach alpha of 0.45 for communicative reflexivity was too low to force its inclusion.

4.6.1.1 Theoretical Considerations

(I) Consideration 1: The nature of the construct

Archer (2007a) has alluded to the ICONI as a multi-dimensional questionnaire in which the four modes of reflexivity are viewed as multi-faceted. An inspection of the 3 items measuring AR does suggest that these items seem to be measuring different characteristics of this construct. For instance item 1 seems to be tapping into a particular cognitive preoccupation (I think about work a great deal even when I am away from it). Item 2 seems to be related to a more personal attribute, potentially behaviourally based (Being decisive does not come easily to me). On the other hand, item 3 deals with a subjective assessment of the self, vis-à-vis an external object, a self-reflective examination (I'm dissatisfied with myself and my way of life – both could be better than they are).

(II) Consideration 2: Direction of Causality

Examining the direction of causality of AR is fraught with complexity. For instance, although the items seem to be measuring different facets of the construct, close inspection suggests a direction of causality from construct to items rather than the other way round, in contradiction to consideration 1. For example, it can be argued that decisiveness and being preoccupied by thoughts of work may be the manifestation of an underlying latent cause, this would then advocate a reflective and not formative model. Indeed, Jarvis et al. (2003) cautioned that answers may be contradictory suggesting the need for further refinement, including empirical consideration of the measures' relationship to other constructs.

(III) Consideration 3: Characteristic of Indicators

From the perspective of direction of causality AR may be viewed as a reflective construct however it is very difficult to identify a common theme running across the items. The lack of interchangeability between the indicators is quite clear and it is evident that dropping an indicator may result in altering the conceptual domain of the construct (Jarvis et al., 2003). For instance, it would be inappropriate to consider a person who lacks the decisiveness element as a strong practitioner of the autonomous mode of reflexivity. Applying the theoretical considerations to the items of AR reinforced the understanding of its measurement model, nevertheless some ambiguity still persisted. The three empirical considerations recommended by Coltman et al. (2008) were then applied.

4.6.1.2 Empirical Considerations

(IV) Consideration 4: Indicator Intercorrelation

The intercorrelations between the indicators of autonomous reflexivity, meta-reflexivity and fractured reflexivity have been produced in Table 20. As already explained above, the intercorrelations between the autonomous indicators were generally small, ranging from -0.10 to 0.35. Items 1 and 2 inter-correlated significantly but negatively whereas items 2 and 3 showed a positive and significant intercorrelation. Items 1 and 3 did not display a significant correlation. Overall, the rather small inter-item correlations, some of which non-significant, between the items measuring autonomous reflexivity added further purchase to the claim that it should be conceptualised as a formative rather than a reflective measurement model.

(V) Consideration 5: Indicator relationship with construct antecedents

Following Coltman et al. (2008), the relationships between the autonomous items and consequences as well as antecedents were tested. According to Jarvis et al. (2003) the nomological net for the indicators may differ in the formative model whereas they should not differ in the reflective model. Structural equation was used to assess the criterion validity of the indicators. Based on the available literature a positive relationship was expected between autonomous reflexivity and innovative behaviour. In addition OFLEX was expected to predict AR. The test involving the autonomous mode, organisational flexibility and innovativeness showed all the indicators of the autonomous mode to be significantly and positively related to innovativeness. As regards antecedents, the test showed a positive and significant relationship with items 1 and 3 whereas the relationship with item 2 was significant but negative. The result of these tests furnished further evidence as to the formative nature of the AR measurement model.

(VI) Consideration 6: Measurement error and collinearity

In terms of multicollinearity, values of inter-item correlations greater than 0.80 would be a cause for concern, however inspection of the correlation matrix provided in Table 20 suggests that multicollinearity was not an issue. Measurement error is discussed in the next subsections.

4.6.2 Validating the Formative AR Construct

With the weight of evidence supporting the formative nature of the autonomous reflexivity measurement model, it was with relative confidence that steps were initiated to validate it as a formative construct. On its own a formative construct is unidentifiable. Several methods of model identification are discussed in the literature, a procedure commonly cited involves fixing the error (or disturbance) term to zero (Diamantopoulos & Winklhofer, 2001), or alternatively equating it with the residual of the construct it is hypothesised to measure (Jarvis et al., 2003). However, MacCallum and Browne (1993) caution that these procedures may not be theoretically appropriate for the former assumes that the formative measure perfectly represents the latent construct, and the latter confounds construct level measurement error with structural error (Jarvis et al., 2003).

Application of a combination of the t-rule, scaling rule (MacCallum & Browne, 1993) and the 2+ emitted paths rule (Diamantopoulos et al., 2008) seem to attract consensus as to the most appropriate methods of operationalising a formative construct. The scaling rule advocates one of the following options: (a) fixing a path from a formative indicator to the construct, (b) fixing a path from the formatively-measured construct to a reflectively- measured endogenous latent variable, or (c) standardising the formatively-measured construct by fixing its variance to unity. The 2+ emitted paths rule implies that the construct must have paths leading to at least two endogenous variables (Edwards, 2001).

According to Diamantopoulos et al. (2008) the literature discusses three approaches for applying the 2+ emitted paths rule, which are (a) adding two reflective indicators to the formatively-measured construct (Model-A), (b) adding two reflectively-measured constructs as outcome variables (Model-B), and (c) a mixture of these two approaches (Model-M). Although adding two reflective indicators may yield the same parameter estimates (Diamantopoulos & Winklhofer, 2001), such models lead to different possible interpretation at a conceptual level (Jarvis et al., 2003). On the other hand, Diamantopoulos et al. (2008) caution that adding two reflective constructs purely for identification reasons puts the theoretical model specification into question if these outcomes are not of theoretical interest. Consequently, scholars (such as Diamantopoulos & Winklhofer, 2001; Jarvis et al., 2003; Petter et al., 2007) tend to advocate the multiple indicators and multiple causes (MIMIC) model, a variant of model (a) with two additional reflective indicators as shown in Figure 6.

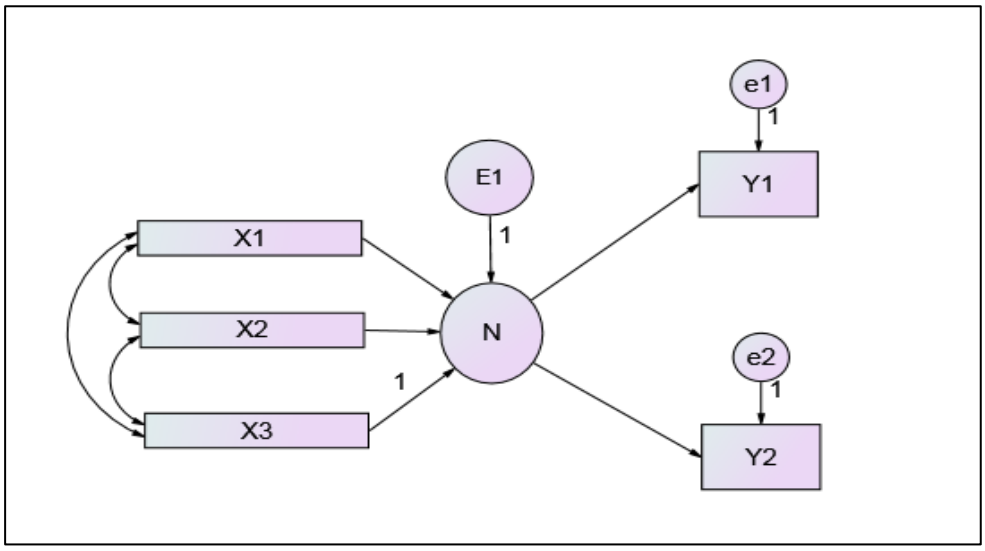

Figure 6: MIMIC Model

The arguments advanced by Jarvis and her colleagues played an instrumental role in guiding the choice of model for AR. Indeed, the AR model was validated as a MIMIC model as it appeared to be the most acceptable way for doing so among scholars of the methods literature. An important aspect in validating a formative construct as a MIMIC model is the reflective indicators of the causal model.

4.6.2.1 Reflective Indicators of Autonomous Reflexivity

According to Jarvis et al. (2003) the MIMIC model is best conceptualised by adding at least two theoretically appropriate reflective indicators to the formative model. Archer found "a disproportionate number of interviewees, relative to the general population, had attained managerial positions and done whilst still very young" (2007a: 291). Judging from their positive psychological orientations already discussed, it is not hard to understand the prevalence of such a tendency. Promotion also spells improved remuneration. A more generous pay package paves the way for greater financial independence in keeping with the aspiration for autonomy cherished by the autonomous subjects. Financial success may then be viewed as an enabling facet of social life central to the pursuit of an independent self. Thus, it may well be the case that the autonomous reflexives view financial success as being important to preserve their autonomy.

Further, according to Schoon and Bynner (2003) the desire to achieve is associated with upward social mobility. Upward social mobility is defined as the first occupational change of a person that led to a higher social position than the previous registered occupational title (Puschmann et al., 2012). Upward social mobility is therefore indexed

in occupational promotion. Archer (2007a) indeed notes repeatedly that the autonomous reflexives manifest a collective tendency toward upward social mobility. From the vantage point of psychology, scholars have discussed the association between upward social mobility and positive human capacities including resilience (Ellis & Lane, 1967), self-confidence (Mulligan, 1952), hope (Douvan & Adelson, 1958) and optimism (Harris, 2008).

Based on the foregoing, there is therefore existing evidence to justify a link between the practice of autonomous reflexivity and upward social mobility. It is on the basis of these reflections that provisions were made in the questionnaire to capture financial success and upward social mobility. Financial success was measured on a ten point scale where respondents were asked to assign a rating as to the centrality of financial security to them. Upward social mobility was measured in terms of occupational achievements on a five point scale.

4.6.2.2 Individual Indicator Validity

To validate the formative autonomous construct the steps described in MacKenzie et al. (2011) were followed. The causal model was constructed as if it was a reflective model; that is, the latent, first order construct was fitted with two reflective indicators, one labelled as financial success and the other upward social mobility. The three causal indicators, Aut1, Aut2, Aut3, were then added and these were allowed to co-vary, see Figure 7. Estimation of the model produced an excellent fit: χ^2 (2) = 3.48, p = .176, RMSEA = 0.04, SRMR = 0.07, NNFI = 0.96, CFI = 0.98. The results for the MIMIC model CFA are recorded in Table 22. Two of the regression weights of the causal indicators were significant Aut1 ($\gamma = 0.59$, $p < .05$) and Aut3 ($\gamma = 0.43$, $p < .05$). The path Aut2 was not significant ($\gamma = 0.03$, $p = .78$). The reflective indicators also loaded significantly on the latent autonomous reflexivity construct, social mobility loaded the strongest ($\gamma = 0.43$, $p < .05$) whereas financial success also loaded significantly ($\gamma = 0.19$, $p < .05$). Inspecting the R^2 value suggests that the three indicators explained 48% of the variance in the construct in the context of the two reflective indicators.

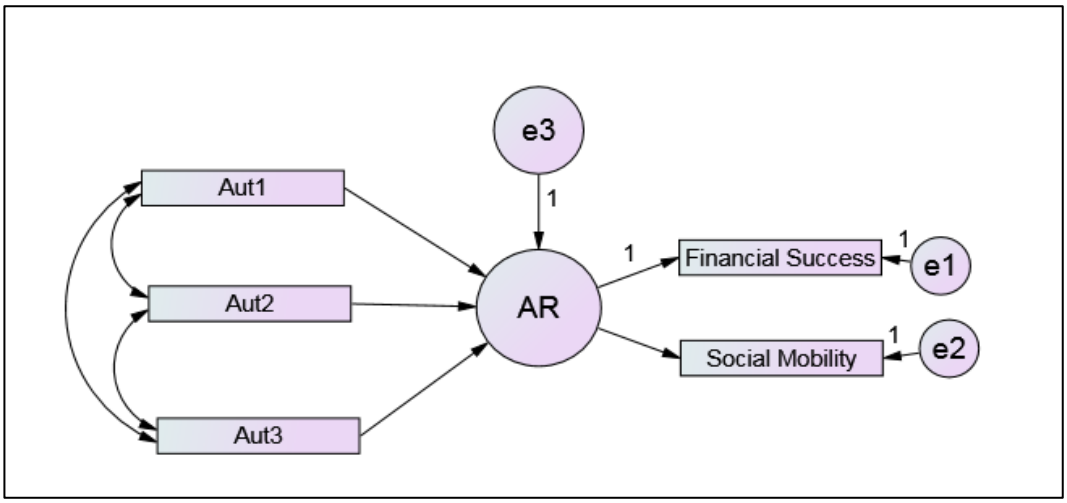

Figure 7: MIMIC Model to Validate AR

Table 22: MIMIC Model Results

Parameter	Unstandardized Estimate	Standard Error	Significance level p	Standardised Estimate
γ_{Aut1}	.088	.037	.018	.587
γ_{Aut2}	.005	.019	.784	.033
γ_{Aut3}	.062	.029	.033	.425
ψ	.037	.047	.432	-
λ_{Fin}	1.000[a]	-	-	.190
λ_{SM}	2.232	.972	.022	.434
θ_1	1.903	.154	.001	-
θ_2	1.537	.264	.001	-

Note: γ = coefficients of formative indicators; ψ = construct error variance; λ = loadings of reflective items; θ = measurement error variances; [a]Fixed parameter

According to Jarvis et al. (2003: 16) the MIMIC model has several advantages over other causal model validation approaches and these include: "(a) the formative construct is identified on its own and can go anywhere in the model, (b) it can be included in a confirmatory factor model and its discriminant validity and measurement properties evaluated, and (c) the measurement parameters are stable and less sensitive to changes in structural parameters." Indeed, MacKenzie and colleagues have noted that:

> The other methods of achieving identification (e.g., emitting paths to at least two other latent constructs with reflective indicators, or emitting paths to one reflective indicator and at least one other latent construct with reflective indicators) require the focal construct to cause at least one other latent construct in the model. That may not be conceptually appropriate or desirable in some instances (MacKenzie et al., 2011: 308)

However, in order to improve stability of the formative construct such that it may be included in a structural equation model in an exogenous or endogenous position (MacKenzie et al., 2011), it is required that a composite measure is computed by

aggregating the weights of the formal indicators. The most commonly employed method entails the calculation of the arithmetic mean (Diamantopoulos & Riefler, 2011) or alternatively termed, the weighted average of the causal indicators. The weighted average takes into account the proportional relevance of each of the indicators of the causal model. The procedure to calculate the weighted average also involves standardising the weights to unity.

All the causal indicators of AF were retained to calculate the weighted average although the beta coefficient for indicator Aut2 returned an insignificant value. Indeed, Mathieson et al. (2001) have suggested that formative constructs are allowed to contain non-significant indicators, especially in the absence of multicollinearity. This view is supported by Bollen and Lennox (1991) suggesting that retaining insignificant indicators help to sustain the content validity of constructs. This is particularly pertinent in this work given the small number of indicators. Therefore, to maintain the content domain (Li et al., 2010) of autonomous reflexivity, all items including the non-significant one, were used in the calculation of the scale score for AR. The aggregated composite AR measure enabled the discriminant validity of construct to be established.

4.6.2.3 Construct Validity Assessment

After examining validity at the individual indicator level, the next step involved assessing validity at the overall construct level. An important point in this regard is that causal indicators are not invalidated by low internal consistency (Diamantopoulos et al., 2008), as MacKenzie et al. (2005) note, the concept of internal consistency is not appropriate as a measure of reliability because the indicators are not assumed to be reflections of an underlying latent variable. Instead, to assess the validity of a formative construct other variables that are effects of the latent variable should be examined (Bollen & Lennox, 1991), one common approach is focusing on nomological and criterion- related validity (Diamantopoulos et al., 2008; Diamantopoulos & Siguaw, 2006; MacKenzie et al., 2005; MacKenzie et al., 2011).

MacKenzie et al. (2011) suggest that conventional procedures for assessing discriminant validity are equally applicable to formative indexes, which include testing whether the focal construct less than perfectly correlates with related constructs, and/or whether it shares less than half of its variance with some other construct, that is, construct intercorrelation is less than 0.71. Nomological validity can be similarly assessed by estimating the latent constructs and testing whether their intercorrelations with

hypothesized antecedents, correlates, and consequences are significantly greater than 0 (MacKenzie et al., 2005). In this study it has been hypothesised that AR will predict task performance, job satisfaction, innovative behaviour and fear of change whereas COCD will influence AR. The inter-construct correlation coefficients are recorded in Table 23.

Table 23: Discriminant and Nomological Validity of AR

	1	2	3	4	5	6
1. Autonomous Reflexivity	1	.241**	.293**	.384**	.407**	-.169**
2. Contextual Discontinuity		1	.324**	.617**	.516**	-.049
3. Task Performance			1	.571**	.389**	-.205**
4. Job Satisfaction				1	.470**	-.139*
5. Innovative Behaviour					1	-.201**
6. Fear of Change						1

**Correlation is significant at the 0.01 level (2-tailed)
*Correlation is significant at the 0.05 level (2-tailed)

As can be observed, the bivariate correlation coefficients between AR and the constructs in its nomological network were all significantly greater than 0. Furthermore, the correlation coefficients were all less than 0.71 suggesting discriminant validity of the AR formative construct as recommended by MacKenzie et al. (2005). Finally the magnitude of the disturbance (error) term was considered as instructed by Diamantopoulos (2006). The error term captures aspects of the construct's domain that the set of indicators neglect, thus the lower the variance of the error term the more valid the construct (Diamantopoulos et al., 2008).

Scholars (such as Fiske et al., 2002; Frazier et al., 2004) recommend the following guidelines for examining disturbance term values based on Cohen's (1992) guidelines for multiple regression: f^2 values of 0.02 ($R^2 = 0.0196$), 0.15 ($R^2 = 0.13$), and 0.35 ($R^2 = 0.26$) refer to a small, moderate and large effect size respectively (Roberts & Thatcher, 2009). The variance of the error was measured as 0.04, p = .432 (see Table 22) indicating that the effect size of the disturbance term was not significantly greater than 0. To make certain of this assertion the disturbance term was constrained to 0 and the MIMIC AR model refitted. The constrained model did not show a significant deterioration in fit: χ^2 (3) = 4.18, p = .24, RMSEA = 0.03, SRMR = 0.03, NNFI = 0.96, CFI = 0.99. The chi square difference test between the two nested models showed that there was no significant difference between the constrained model and the freely estimated model, $\Delta\chi^2$ (1) = 0.70, p > 0.40. Taken together the analyses provided evidence to support the hypothesized formative measurement model of AR. Such being the case, the weighted aggregated

composite AR scale was used in subsequent analyses and was positioned exogenously or endogenously as warranted. The last few steps in the validation process involved the analysis of common method bias. Analysis of common method bias was followed by the treatment of the two 2nd order latent constructs; PsyCap and organisational contextual discontinuity (COCD). Next the procedures followed to assess the CMB are discussed, but first the nuances of its theoretical underpinnings are briefly explored.

4.7 Post Hoc Statistical Control of CMB

The literature is rich with statistical approaches for analysing CMB in research data. One of the simplest approaches is to perform the Harman's single-factor test (Favero & Bullock, 2014). The basic assumption of this test is that if a substantial amount of common method variance is present, a factor analysis of all the data will result in a single factor accounting for the majority of the covariance in the independent and dependent variables (Darnall et al., 2010). In spite its ease of application and simplicity the Harman test is limited in terms of sensitivity to detect moderate or small levels of CMV effects (Podsakoff et al., 2003). Scholarly works employing the Harman's test include Gao et al. (2011), Barnes (2011) and Brattström et al. (2012).

The rapid rise of the structural equation modelling (SEM) with latent variables in organisational research has also been accompanied by a growing interest by scholars to apply this analytical approach in areas of method variance research. A procedure that is gaining traction is the use of a marker variable. This approach was designed to address the problems related to Harman's test in a single-method research design. A marker variable is one that is theoretically unrelated to substantive variables and for which its expected correlation with these substantive variables is 0 (Williams et al., 2010). The procedure is based on the work of Lindell and Whitney (2001) who provided a partial correlation technique to account for the CMB between a chosen nonzero marker variable and a substantive variable (Williams et al., 2010).

The logic behind the marker is that, because it should be theoretically unrelated to one of the substantive variables, any observed correlation between the two cannot be due to a relationship and thus must be due to something else they have in common (i.e., CMV) (Richardson et al., 2009). The marker variable technique is based on an assumption that CMV always inflates inter-variable relationship, however, scholars have remarked that CMV not only inflates but deflates relationships (Siemsen et al., 2010). Furthermore, because a marker variable does not theoretically relate to research variables, its

relationship with research variables will not be sensitive to such common rater effects as implicit theories or social desirability (Podsakoff et al., 2003). Nevertheless the use of marker variables as a means of post hoc evaluation of CMV is in vogue, recent works employing this technique include Homburg et al. (2014) and Carter et al. (2014).

Perhaps the most exhaustive instruction on the use of latent variables and SEM in analysing CMV is provided by Podsakoff et al. (2003). In this most instructive work Podsakoff and his colleagues meticulously evaluated the pros and cons of existing statistical remedies and proposed a decision tool based on the uniqueness of the research setting. They presented their recommendations for controlling CMV in terms of seven different situations. The decision tool provided in Podsakoff et al. (2003) was followed to determine the best way of examining the influence of CMB in this work. Based on their recommendations, Situation 7 was assessed as more relevant. According to Situation 7 the single-common-method-factor approach offers the best statistical option for evaluating CMB.

A number of scholars have followed these procedures in evaluating CMB (e.g., Carlson & Kacmar, 2000; Conger et al., 2000; MacKenzie et al., 1999). This technique models the effect of the method factor on the measures rather than on the latent constructs they represent and does not require the effects of method factor on each measure to be equal (Podsakoff et al., 2003), in contradistinction from the marker variable technique. However, it has been pointed out that the lack of convergence is often an issue with SEM (Favero & Bullock, 2014). In addition, the method does not seem to permit the specific cause of the method bias to be identified (Podsakoff et al., 2003). In this study the comprehensive CFA Marker Technique was employed to examine the presence of CMB. This procedure was proposed by Williams et al. (2010), it is a three-phase confirmatory factor analysis (CFA) marker technique to identify and control for method biases (Podsakoff et al., 2012), and seeks to address some of the deficiencies associated with the original proposal presented by Lindell and Whitney (2001).

According to Podsakoff et al. (2012), the CFA marker technique models the effects of method biases at the indicator level (rather than construct level), provides a statistical test of method bias based on model comparisons, as well as permits a test of whether method biases affect all measures equally or differentially. Furthermore, the SEM approach is seen as being more consistent than the partial correlation method, with method variance research approaching it from a measurement perspective (Williams et al., 2010).

Although most statistical procedures purported to examine CMV have been criticised for their lack of efficacy in correctly detecting bias, there is a growing consensus that the comprehensive CFA marker technique is a useful means for providing evidence of CMV (Richardson et al., 2009). It is thus not surprising that some leading names in method variance research, such as Podsakoff et al. (2012) for instance, recommend the use of the CFA marker technique when the source of the method bias is unknown or valid measures of the source of bias are not available.

Recent works in the field of organisational behaviour that have applied this procedure include a study examining the effect of CEO narcissism on entrepreneurial orientation and firm performance by Wales et al. (2013). Fractured reflexivity (FR) was chosen to be the marker variable on the theoretical understanding that it would be theoretically uncorrelated with at least the facets of COCD in line with the instructions in Lindell and Whitney (2001). The statistical tests to examine the CMV rely on the procedures outlined by Williams et al. (2010), consequently much of the same language is employed to describe the process.

4.7.1 Phase I: Model comparison.

The first model examined, CFA model (see Figure 8), allows for a complete set of correlations among all the substantive latent variables and the marker latent variable. The main reason for evaluating this model was to obtain the factor loading and measurement error variance estimates for the three marker variable indicators for use in subsequent models. The second model evaluated, the Baseline Model shown in Figure 9, allows the substantive factors to be correlated with each other but has an orthogonal marker latent variable with its indicators having fixed factor loadings and fixed error variances.

The unstandardized factor loadings ($\beta_1 = 1$, $\beta_2 = 0.87$, $\beta_3 = 1.06$) and error variances ($e_{69} = 1$, $e_{70} = 1.18$, $e_{70} = 0.80$) from the CFA model were used as the fixed values. The use of the fixed values in the evaluation of the Baseline Model and all subsequent models was required to establish the meaning of the marker latent variable. The marker variable was assumed to be orthogonal because this assumption was necessary in subsequent models, and the goal of the Baseline Model was to have it specified so that all subsequent model comparisons would focus only on method variance factor loadings.

Next, Method-C Model (see Figure 10) was examined. This model was conceptualised as a common/restrictive method variance (CMV) model in line with the assumptions of

Lindell and Whitney (2001). It has additional factor loadings from the method latent variable to each of the indicators in the model. Additionally, each of the marker method factor loadings that relate to substantive items was forced to be equivalent in value, so as to appropriately reflect the assumption of the CMV model of equal method effects. The comparison of the Method-C Model with the Baseline Model is a test of the presence of method variance associated with the marker variable. The Method-U Model is similar to the Method-C Model except that the factor loadings from the marker latent variable to the substantive indicators were not forced to be equivalent and were allowed to have different estimates, thus reflecting the assumption of the unrestricted method variance model (UMV) (Richardson et al., 2009) or Congeneric Model that the marker variable is differentially related to the substantive variables.

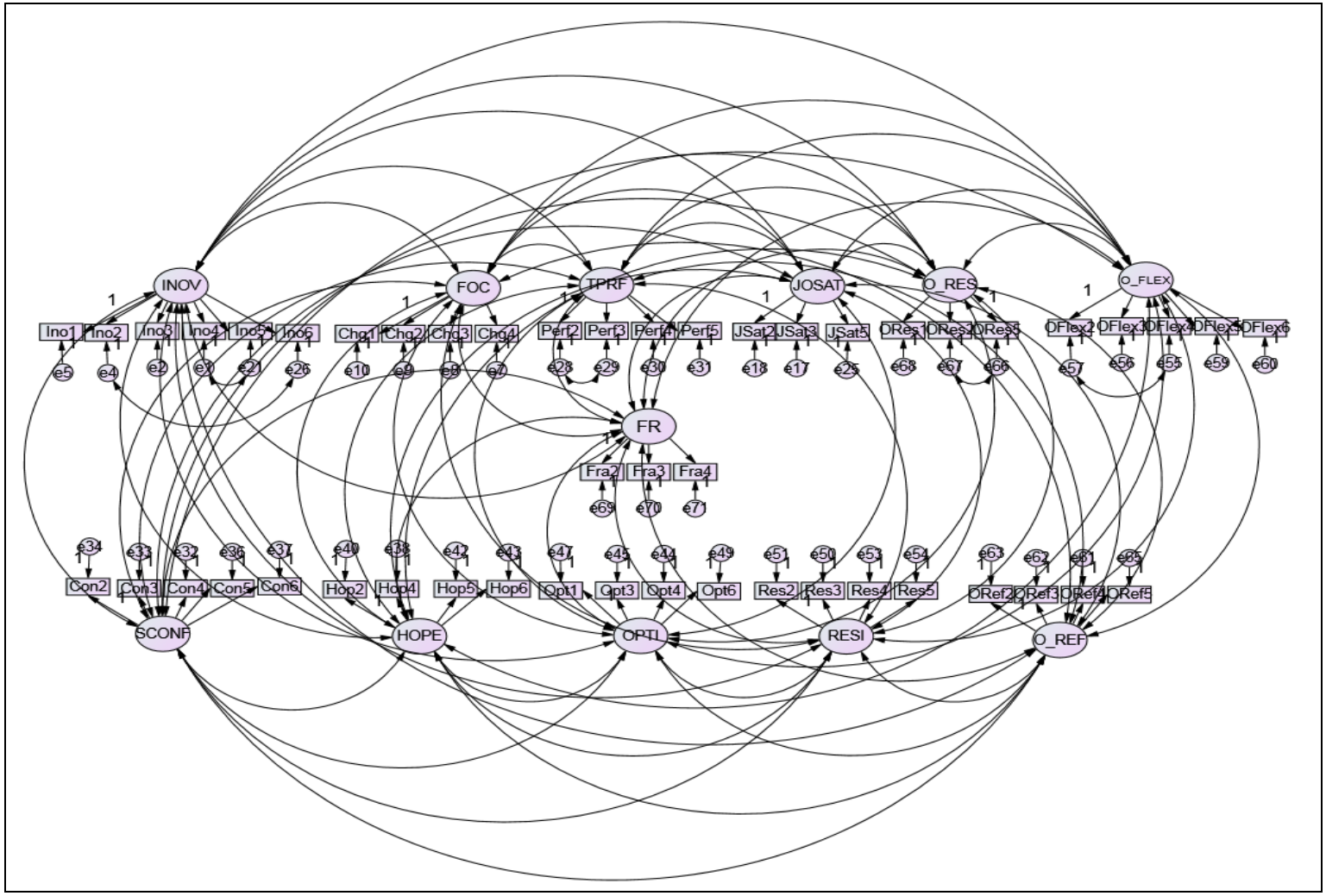

Figure 8: CFA Model

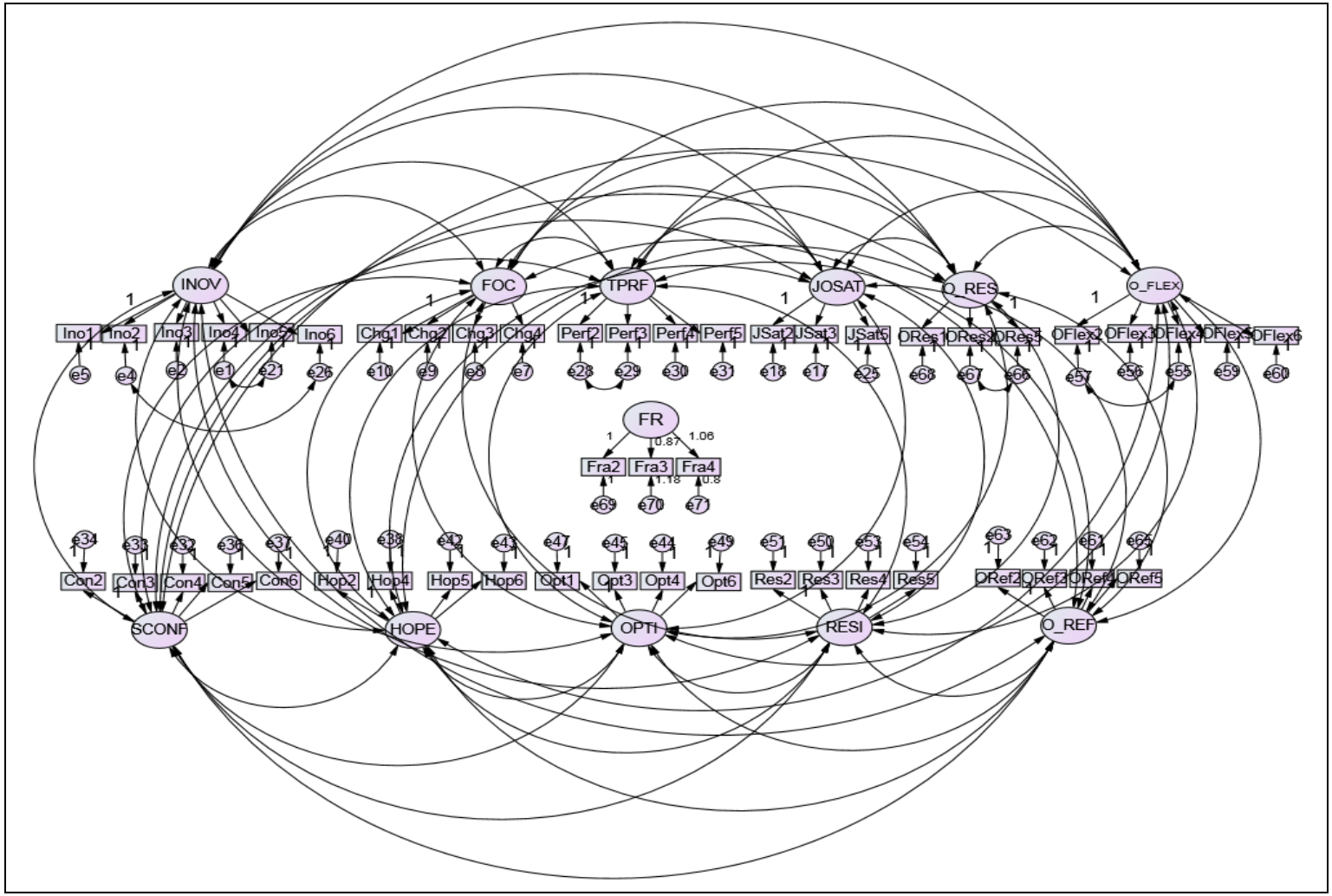

Figure 9: The Baseline Model

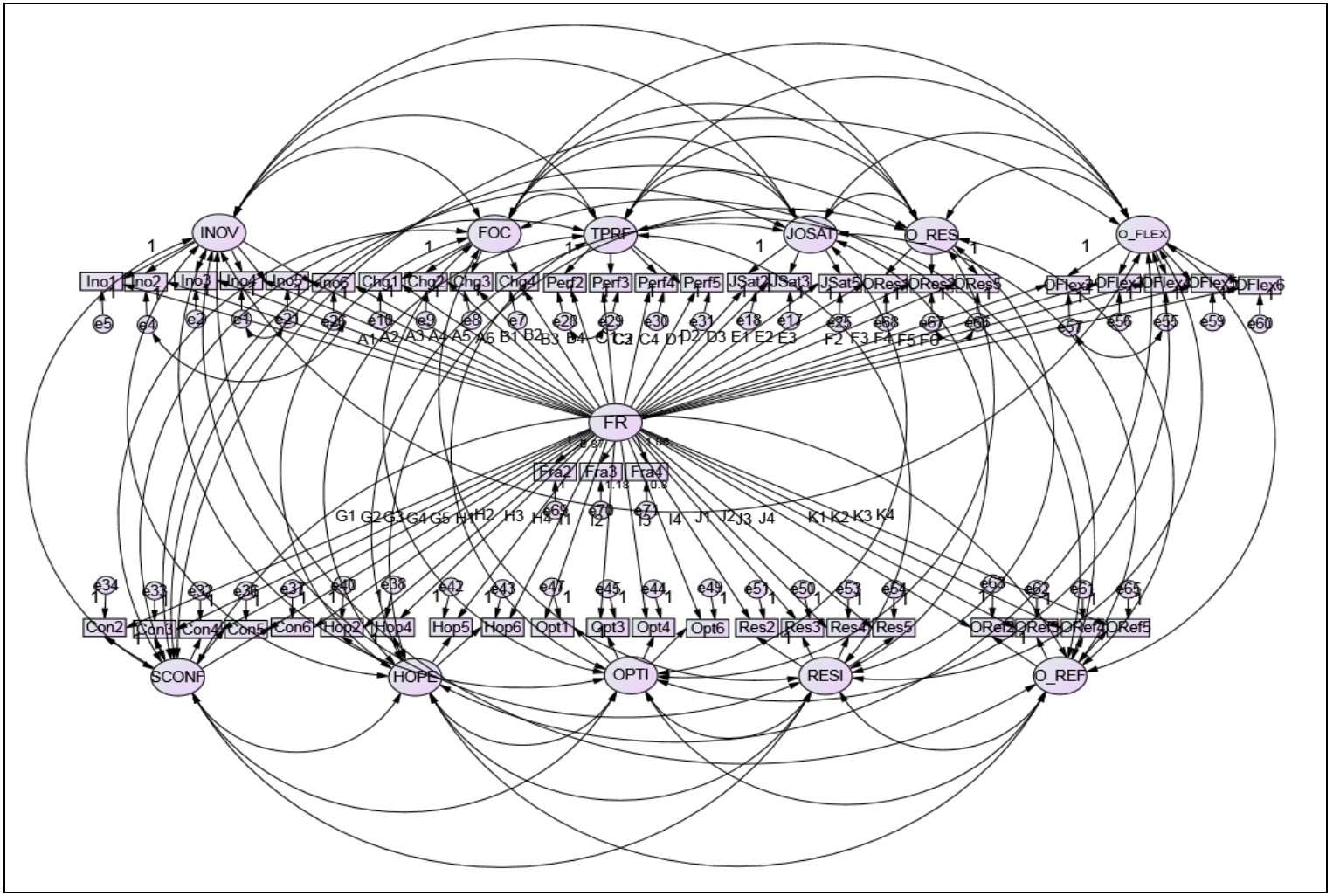

Figure 10: Method-C Model

The model fit results for each model are shown in Table 24, these include chi-square (χ^2), degrees of freedom (df), and Comparative Fit Index (CFI) values in line with the reporting protocols provided in Williams et al. (2010). While the CFI values were short in achieving the commonly cited 0.95 values, they were nonetheless all greater than 0.90. As pointed out by Williams et al. (2010), the 'relatively' low CFI values may be attributed to the large number of indicators for the substantive variables and the resulting number of constrained parameters in the loading matrix. The Baseline Model was then compared against Method-C Model to test the null hypothesis that the method factor loadings (assumed to be equal) associated with the marker variable were not related to each of the substantive indicators. The chi-square difference test comparing these two models indicated support for accepting the null hypothesis that the method factor loadings in the Baseline Model were not different to zero contrary to the findings of Williams et al. (2010).

As shown in Table 24, the comparison yielded a chi-square difference of 2 with one degree of freedom which is less than the 0.05 chi-square critical value for one degree of freedom of 3.84. Thus, this comparison suggests that in general the marker variable was theoretically unrelated to the substantive variables.

Table 24: Chi-Square, Goodness of Fit Values and Model Comparison Tests

Model	**χ^2**	**df**	**CFI**
CFA	2043	1056	0.932
Baseline	2186	1069	0.923
Method-C	2184	1068	0.923
Method-U	1953	1023	0.936
Method-R	2009	1078	0.936
Chi-Square Model Comparison Tests			
ΔModels	**Δ χ^2**	**Δdf**	**Chi-Square Critical Value: (0.05)**
Baseline vs. Method-C	2	1	3.84
Method-C vs. Method-U	231*	45	60.48
Method-U vs. Method-R	56	55	73.31

*p <.05

Next, a model comparison was conducted between Method-U and Method-C Models to determine if the impact of the method marker variable was equal for all of the items loadings on the substantive indicators. Comparison of these two models tested the null hypothesis that the method factor loadings were equal. The chi-square difference test provided support for rejecting the hypothesis in the Method C Model. The comparison yielded a chi-square difference of 231 with 45 degrees of freedom exceeding the 0.05

critical values of 60.48. On the weight of this evidence it was concluded that the Method-U model represented the best model for accounting for marker variance on substantive indicators. In Table 25 the standardised factor loadings are presented for four substantive variables (self-confidence, hope, optimism and resilience), the factor loadings for the rest of the substantive variables can be found in Table 50 and Table 51 in the MA.

Table 25: Method-U Model Factor Loadings: Completely Standardised Solution

Item	Self-confidence	Hopefulness	Optimism	Resilience	Marker Variable (FR)
Con2	0.774*				-0.400*
Con3	0.769*				-0.376*
Con4	0.758*				-0.361*
Con5	0.654*				-0.373*
Con6	0.700*				-0.367*
Hop2		0.748*			-0.133*
Hop4		0.819*			-0.351*
Hop5		0.842*			-0.263*
Hop6		0.790*			-0.274*
Opt1			0.707*		-0.257*
Opt3			0.850*		-0.330*
Opt4			0.765*		-0.274*
Opt6			**0.729***		**-0.068**
Res2				0.715*	-0.372*
Res3				0.705*	-0.412*
Res4				0.801*	-0.376*
Res5				0.709*	-0.394*
β_1					0.815[a]
β_2					0.744[a]
β_3					0.849[a]

Significant: ***p <.05**

Note: Factor loadings taken from the Baseline Model and held constant through the model comparison are marked with the letter "a."

All the substantive indicators loaded significantly ($p < 0.05$) on the factors they were intended to measure. In respect to the method factor loadings from Method-U Model, 35

out of 46 were statistically significant at the $p < 0.05$ level, indicating that the items were contaminated by a source of method variance captured by the marker variable. These significant values ranged from -0.12 to 0.57 and the median value was -0.26. The square of these values represent the percentage of variance in the indicator associated with the marker variable, indicating that the median amount of marker variable in each indicator was 6.6%. The non-significant factor loadings were mostly associated with the substantive indicators of the COCD facets. The chi-square difference test between the Method-U and Method-R Models resulted in a non-significant difference of 56 at 55 degrees of freedom. Previous tests indicated that marker variable effects were significant and represented significant effects in the Method-U model, but the result of the Method-U and Method-R Models confirmed that the effects of the marker variable did not significantly bias factor correlation estimates (see Table 24).

4.7.2 Phase II: Reliability Decomposition

In the second phase of the study the object of interest was to decompose observed values of total reliability associated with the measurement of the substantive latent variables into substantive and method portions. Table 26 records the reliability information for all the variables including the marker latent variable (not decomposed).

Table 26: Reliability Decomposition

	Reliability Baseline Model	**Decomposed Reliability Method-U Model**		
Latent Variable	**Total Reliability**	**Substantive Reliability**	**Method Reliability**	**% Reliability Marker Variable**
Fear of Change	0.957	0.836	0.121	12.640
Innovativeness	0.903	0.886	0.017	1.910
Job Satisfaction	0.790	0.762	0.028	3.540
Task Performance	0.921	0.897	0.024	2.593
Self-confidence	0.913	0.852	0.061	6.700
Hope	0.905	0.877	0.028	3.130
Optimism	0.875	0.849	0.026	2.980
Resilience	0.898	0.822	0.075	8.410
Organisational Flexibility	0.940	0.939	0.001	0.070
Organisational Reflexivity	0.915	0.913	0.003	0.240
Organisational Resources	0.878	0.875	0.003	0.373

This table shows the overall reliability values based on the estimate of the Baseline Model and values obtained with the decomposition using the Method-U estimates. According to the values in the table, all of the latent variables had high internal reliability (ranging from 0.79 to 0.96). The values associated with decomposition were relatively small but nonetheless showed that expression of fear of change in the workplace was most susceptible to method variance, with a method component value of 0.12 followed by resilience and self-confidence/efficacy with method component values of 0.08 and 0.06 respectively. The other component values were all relatively small. In terms of percentage of the total reliabilities, these method components accounted for 12.6%, 8.4% and 6.7% of the reliability values for fear of change, resilience and self-confidence/efficacy respectively. These values are favourable compared to those reported in previous studies employing the same techniques (e.g., Spanjol et al., 2012; Williams et al., 2010).

4.7.3 Phase III: Sensitivity Analysis.

The sensitivity analysis addresses the concerns of Lindell and Whitney (2001) relating to the effects of sampling error on estimates of method variance due to marker variables. The aim of this test was to investigate the nature of the changes in size and significance of the correlations between substantive variables as the fixed estimates associated with the marker variable from Method-U Model were fixed at higher values. In line with the procedures detailed in Williams et al. (2010) two additional models were constructed for this test by fixing the unstandardized factor loadings (β_{is}) of the marker variable at values associated with the higher end of the confidence interval for the 0.05 and 0.01 α levels and referred to them as Method-$S_{(.05)}$ and Method-$S_{(.01)}$ Models respectively. The factor loadings associated with the respective confidence levels are shown in Table 27.

Table 27: Factor Loadings for Method-S Models

Factor Loading Parameter	**Original Unstandardized Correlation**	**Unstandardized Error Variance (e)**	**Method-S Models**	
			Method-S(.05)	Method-S(.01)
			$\beta_{(.05)} = \beta_i + 1.96e$	**$\beta_{(.01)} = \beta_i + 2.58e$**
β_1	1.000	1.000	2.960	3.580
β_2	0.870	1.180	3.182	3.914
β_3	1.060	0.800	2.628	3.124

The factor correlations related to the latent variables from the various models examined are shown in Table 28. Only the values of the correlations between dependent and independent variables are shown.

Table 28: Method Variance Sensitivity Analysis

Factor Correlations			Models				
			CFA	**Baseline**	**U**	**$S_{(.05)}$**	**$S_{(.01)}$**
INOV	<-->	ORES	0.473*	0.473*	0.465*	0.467*	0.467*
FOC	**<-->**	**ORES**	**-0.063**	**-0.064**	**-0.009**	**-0.012**	**-0.013**
TPRF	<-->	ORES	0.317*	0.317*	0.305*	0.306*	0.306*
JOSAT	<-->	ORES	0.641*	0.644*	0.647*	0.648*	0.648*
SCONF	<-->	ORES	0.261*	0.262*	0.243*	0.245*	0.245*
HOP	<-->	ORES	0.401*	0.401*	0.391*	0.393*	0.393*
OPTI	<-->	ORES	0.523*	0.523*	0.520*	0.522*	0.522*
RESI	<-->	ORES	0.316*	0.316*	0.301*	0.303*	0.303*
INOV	<-->	OREF	0.556*	0.556*	0.553*	0.556*	0.556*
FOC	**<-->**	**OREF**	**-0.070**	**-0.070**	**-0.019**	**-0.022**	**-0.022**
TPRF	<-->	OREF	0.367*	0.367*	0.356*	0.357*	0.357*
JOSAT	<-->	OREF	0.667*	0.669*	0.672*	0.673*	0.674*
SCONF	<-->	OREF	0.320*	0.320*	0.311*	0.314*	0.314*
HOP	<-->	OREF	0.511*	0.511*	0.509*	0.510*	0.510*
OPTI	<-->	OREF	0.537*	0.537*	0.538*	0.539*	0.539*
RESI	<-->	OREF	0.383*	0.383*	0.382*	0.384*	0.384*
INOV	<-->	OFLEX	0.485*	0.485*	0.487*	0.489*	0.490*
FOC	**<-->**	**OFLEX**	**-0.044**	**-0.045**	**-0.009**	**-0.011**	**-0.011**
TPRF	<-->	OFLEX	0.318*	0.318*	0.315*	0.316*	0.316*
JOSAT	<-->	OFLEX	0.658*	0.660*	0.669*	0.670*	0.671*
SCONF	<-->	OFLEX	0.321*	0.321*	0.326*	0.329*	0.330*
HOP	<-->	OFLEX	0.509*	0.509*	0.516*	0.518*	0.518*
OPTI	<-->	OFLEX	0.533*	0.533*	0.543*	0.545*	0.545*
RESI	<-->	OFLEX	0.344*	0.343*	0.350*	0.352*	0.352*
INOV	<-->	FR	-0.276*	0	0	0	0
JOSAT	<-->	FR	-0.275*	0	0	0	0
SCONF	<-->	FR	-0.442*	0	0	0	0
HOPE	<-->	FR	-0.327*	0	0	0	0
OPTI	<-->	FR	-0.329*	0	0	0	0
RESI	<-->	FR	-0.452*	0	0	0	0
OFLEX	<-->	FR	-0.092	0	0	0	0
OREF	<-->	FR	-0.113	0	0	0	0
ORES	<-->	FR	-0.118	0	0	0	0

Significant: *p < .05

Values obtained with the CFA Model and Baseline Model, which did not include method factor loadings, are shown for comparison with those obtained from the Method-U Model, and the two Method-S Models. As can be observed in Table 28, the manipulation of the method factor loadings generally resulted in only a small corresponding change in the factor correlations. Initially, in the Baseline Model, all the substantive factor correlations were significant with the exception of the correlations between FOC and the COCD measures.

A similar pattern was observed when method effects were introduced in the Method-U model, the correlations among the latent variables remained significant, although their values dropped to some extent. As the size of the method factor loadings was increased to values associated with the higher end of the .05 confidence interval in the Method-$S_{(.05)}$ Model, the correlations between the latent variables continued to be significant and relatively unchanged. As the magnitude of the factor loadings was increased based on the 0.01 confidence interval in the Method-$S_{(.01)}$ Model, the factor correlations remained significant and relatively unchanged in value. Altogether, the outputs from these analyses attested that common method bias was not a serious issue in this study (Bock et al., 2012; Kim, 2014), suggesting that common variance could be ruled out as an alternative explanation (Webster et al., 2014) to the observed relationships.

4.8 Validation of the 2nd Order PsyCap Construct

To confirm the expected higher-order factor, PsyCap, the four dimensions (self-confidence/efficacy, hope, resilience and optimism) were fitted to a higher order latent factor (see Figure 24 in Appendix (II)) and a CFA conducted following the procedures already detailed above. The fit estimates were in line with the recommended values: χ^2 (115) = 324, $p < .001$, NNFI = 0.93, CFI = 0.95, RMSEA = 0.07, SRMR = 0.05. In addition to the CFA, the procedures in Luthans et al. (2007) were followed to conduct a competing models analysis to more directly examine the proposition that PsyCap may be an underlying construct described as a higher-order factor. The higher-order factor model described above, two 3-factor and a 1-factor models were subjected to a significance test of difference using chi-square (Huang & Luthans, 2014). Specifically, the hypothesised higher-order model was compared with each of the four facets loading to the higher-order factor against three competing models including multiple 3-factor models which combined various facets, as well as a single-factor model in which all the items were loaded to one latent PsyCap factor.

The results in Table 29 show that the hypothesised 4-factor measurement model exhibited a significantly better fit than the best competing alternative model: $\Delta\chi^2$ (116) = 230.99, p < .001. Results from these model comparisons supported the proposed higher-order positive psychological factor (PsyCap) (Luthans et al., 2007). The validity of the 2nd order construct was assessed following the procedures detailed in MacKenzie et al. (2011).

Table 29: Comparison of a Priori PsyCap Factor Structure

Models	**Factors**	**χ^2**	**df**	**$\Delta\chi^2$**	**RMSEA**	**CFI**	**SRMR**
Baseline Model 1	4 factors as indicators of PsyCap (confidence, hope, resilience, optimism)	324.27	115		0.073	0.951	0.0493
Model 2	3 factors as indicators of PsyCap (hope and optimism merged; confidence; resilience)	555.260	116	230.990*	0.106	0.898	0.0592
Model 3	3 factors as indicators of PsyCap (optimism and resilience merged; confidence; hope)	609.590	116	285.320*	0.113	0.883	0.0623
Model 4	1 factor as an indicator of PsyCap (all items)	1372.440	119	1048.170*	0.176	0.709	0.0989

Significant: *p < .01

First, each of the 1st order factor loadings was inspected, they all displayed significant values on the 2nd order PsyCap factor: self-confidence (0.77), hope (0.89), resilience (0.81), and optimism (0.81). The square correlation for each sub-dimension also exceeded the recommended value of 0.50 (ranging from 0.59 to 0.79) indicating that the latent second-order factor, PsyCap, accounted for the majority of the variance in those sub-dimensions. The AVE was calculated by averaging the square correlations of the four 1st order factors producing a value of 0.67 which exceeded the recommended value of 0.50. The Cronbach alpha was then calculated for the four factor 2nd order latent construct to obtain a value of 0.89; this suggested very good internal reliability. Finally, the nomological validity was examined as recommended in Hair et al. (2010). The usefulness of PsyCap is normally examined in the literature on the basis of its relationship with job

satisfaction and performance (e.g., Avey et al., 2010b; Luthans et al., 2007; Youssef & Luthans, 2007). In terms of antecedents, studies have found that PsyCap is normally immune to the effects of socio-demographic variables such as gender, tenure in organisation, tenure in current post and gender (e.g., Hayek, 2012; Luthans et al., 2007; Luthans et al., 2013).

To test the usefulness of PsyCap a model with the 2nd order factor, PsyCap, was constructed as the predictor variable and job satisfaction and task performance as the criterion variables. In line with previous studies education level, tenure in post, tenure in organisation, gender and age were controlled on PsyCap. The fit estimates for the model were within acceptable limits: χ^2 (11) = 32, p < .001, NNFI = 0.96, CFI = 0.98, RMSEA = 0.08, SRMR = 0.05. The structural paths from PsyCap showed a significant relationship with both task performance ($\beta = 0.63$, p < .01) and job satisfaction ($\beta = 0.62$, p < .01). Apart from age which showed a positive relationship with PsyCap ($\beta = 0.17$, p < .01) the demographic variables included in the model did not display significant relationships with PsyCap. These results are generally consistent with the findings of previous studies and confirmed the usefulness of the 2nd order latent PsyCap measure in the UK context for the first time. Taken together, these results supported PsyCap as a valid 2nd order constructs whose constituents include self-confidence, hope, resilience and optimism.

4.9 Validation of the 2nd Order COCD Construct

The same procedure as described above was followed to examine the hypothesis that contextual discontinuity in the workplace may be an underlying construct described as a higher-order factor which manifests as perceptions of different facets of organisational climate. The three first order factors (flexibility, reflexivity and resources) were fitted to a higher order latent factor. Furthermore, the two-item factor of autonomy was also fitted to the higher order latent factor in spite of it falling short of the minimum item-to-construct ratio of three (DiStefano & Hess, 2005), Figure 25 in Appendix (II) shows the four factor COCD. The autonomy measure was included for theoretical reasons in the first instance. The literature emphasises the role of a degree of workplace independence in fostering the experience of contextual discontinuity, thus the inclusion of autonomy in the higher order construct was assessed as important and necessary.

The CFA for the hypothesised model was performed, the fit estimates were generally in line with guidelines for model fit: χ^2 (81) = 220.61, p < .001, NNFI = 0.96, CFI = 0.97, RMSEA = 0.07, SRMR = 0.03. A competing models analysis was also conducted by

comparing the hypothesised higher-order model with each of the four facets loading to the higher-order factor against three competing models including multiple three-factor models, which combined various facets as well as a single-factor model in which all the items were loaded to one latent contextual discontinuity factor. The fit estimates in Table 30 show that the hypothesised four-factor measurement model exhibited a significantly better fit than the best competing alternative model: $\Delta\chi^2$ (71) = 198.47, p < .001. Results from these model comparisons supported the proposed higher-order organisational contextual discontinuity (COCD) factor as hypothesised in H_{11}.

Table 30: Comparison of a Priori COCD Factor Structure

Models	**Factors**	**χ^2**	**df**	**$\Delta\chi^2$**	**RMSEA**	**CFI**	**SRMR**
Baseline Model 1	4 factors as indicators of COCD (flexibility, reflexivity, resources, autonomy)	194.93	70		0.073	0.972	0.0321
Model 2	3 factors as indicators of COCD (resources and autonomy merged; flexibility; reflexivity	438.91	71	243.98*	0.124	0.918	0.0459
Model 3	3 factors as indicators of COCD (flexibility and resources merged; reflexivity; autonomy	393.40	71	198.47*	0.116	0.928	0.0513
Model 4	1 factor as an indicator of COCD (all items)	858.01	74	663.08*	0.177	0.825	0.0708

Significant: *p < .01

To assess the validity of the 2nd order latent COCD construct the path coefficients from COCD to the four sub factors were inspected, all paths were significant exceeding the recommended 0.50 threshold (β_{flex} = 0.92, p < 0.01; β_{ref} = 0.88, p < 0.01; β_{res} = 0.90, p < 0.01; β_{auto} = 0.68, p < 0.01). The square correlations of the respective factors ranged from 0.47 to 0.85. Although the R^2 value for autonomy (0.47) did not quite meet the standard of 0.50 normally recommended, it was felt, considering that the reverse scored items had

to be dropped from the measurement model and based on theoretical considerations, that it was justified to retain autonomy as part of the higher order latent factor. The AVE for the set of factors was calculated by averaging the square correlations of the sub factors which produced a value of 0.73 exceeding the 0.50 recommendation in spite of the R^2 for autonomy being slightly on the low side. The Cronbach alpha was calculated on the basis of a four factor solution producing a value of 0.92 which suggested a good internal reliability of the 2nd order latent factor COCD.

Finally, the relationship of the 2nd order factor with criterion variables it supposed to predict was assessed. Drawing on Archer's (2007a) notion of contextual discontinuity, a positive relationship between the experience of contextual discontinuity in the workplace and self-confidence and resilience respectively was hypothesised. In addition to that, education level, tenure in organisation, and gender were controlled on COCD. Estimation of the model testing the nomological validity of COCD resulted in fairly good fit estimates: χ^2 (11) = 32.51, $p < 0.001$, NNFI = 0.95, CFI = 0.96, RMSEA = 0.08, SRMR = 0.06. The structural paths from COCD to both self-confidence ($\beta = 0.29$, $p < 0.05$) and resilience ($\beta = 0.36$, $p < 0.05$) were significant. The paths from the control variables to COCD were all insignificant at 0.05 α level, suggesting that the experience of contextual discontinuity may not be dependent on those controlling variables. Taken together, the tests performed confirmed the hypothesised structure and the validity of the 2nd order latent factor COCD.

4.10 Chapter Summary

Validation of the measurement models was approached in as an exhaustive manner as possible following the most current procedures in contemporary measurement models literature. The plethora of tests has largely served to confirm the hypotheses relating to the nature of the different measurement models employed in this study. In the first instance, autonomous reflexivity was found to support a formative model. On the other hand, both the fractured and meta-reflexivity measurement models turned out to be consistent with a reflective type of structure, whereas the communicative model had to be dropped for failing to meet the minimum internal reliability threshold. It is also worth mentioning that the analysis conducted on the organisational climate dimensions supported the existence of a 2nd order construct of climate of organisational contextual discontinuity (COCD), made up of organisational flexibility and innovation, resources, autonomy and reflexivity.

With the weight of evidence supporting the structure and validity of the constructs for this study, the next step in the analysis involved an examination of the structural relationships and the testing of hypotheses. However, before moving on it is useful to report the statistics of the overall measurement model. With all the adjustments in place, the CFA with all the latent variables included in the study (see Figure 20 in Appendix (II)) yielded acceptable fit statistics: χ^2 (1056) = 2042.65, $p < 0.001$, NNFI = 0.87, CFI = 0.93, RMSEA = 0.05, SRMR = 0.04. The Bollen-Stine bootstrap was significant at $p = 0.00$ supporting the null hypothesis that the overall model was correctly specified. The descriptive statistics and the correlation matrix for all study variables are reported in Table 31. In the next chapter the results of the structural models that examined the hypothesised structural relationships are reported.

Table 31: Means, Standard Deviation and Correlations for Variables in the Study

	M	Std. Dev	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. AR	4.31	1.21	1																					
2. MR	4.06	1.18	.108*	1																				
3. FR	3.37	1.48	-.244**	.470**	1																			
4. COCD	4.18	1.29	.212**	-.008	-.090	1																		
5. Spirit	3.12	1.83	.056	.286**	.270**	.248**	1																	
6. RESI	5.23	0.80	.298**	-.130*	-.402**	.375**	-.057	1																
7. SCONFI	5.05	1.21	.359**	-.077	-.400**	.301**	-.012	.706**	1															
8. HOP	4.30	0.94	.415**	-.046	-.329**	.424**	.048	.815**	.732**	1														
9. OPTI	4.60	1.18	.306**	-.015	-.319**	.483**	.096	.761**	.551**	.709**	1													
10. PsyCap	4.59	0.92	.385**	-.083	-.403**	.441**	.012	.945**	.814**	.936**	.834**	1												
11. TPERF	4.34	0.89	.302**	-.091	-.238**	.377**	.041	.622**	.462**	.588**	.541**	.634**	1											
12. JOSAT	4.16	0.85	.419**	-.062	-.267**	.597**	.119*	.554**	.454**	.590**	.578**	.614**	.770**	1										
13. INOV	4.44	1.09	.419**	-.003	-.267**	.534**	.160**	.543**	.576**	.602**	.559**	.632**	.459**	.625**	1									
14. FOC	3.17	1.47	-.178**	.236**	.514**	-.079	.248**	-.395**	-.352**	-.317**	-.341**	-.392**	-.204**	-.167**	-.229**	1								
15. EDU	3.50	1.21	.195**	.189**	-.002	.122*	.083	.014	.052	.026	.011	.026	-.005	.048	.225**	.003	1							
16 T_Post	5.88	5.31	.030	-.083	-.126*	-.064	.017	.025	-.055	.004	.045	.010	.040	-.002	-.094	.127*	-.184**	1						
17. T_Org	8.70	8.11	.103*	-.125*	-.191**	-.071	-.077	.055	.043	.079	.080	.073	.073	.067	-.038	.024	-.158**	.616**	1					
18. Age	46.3	12.60	-.010	-.102	-.308**	-.133*	-.125*	.145**	.129*	.151**	.121*	.156**	.034	.043	-.077	-.204**	-.279**	.381**	.339**	1				
19. Sex	0.49	0.50	-.091	-.087	-.092	-.022	-.117*	.062	.125*	.067	-.007	.068	-.152**	-.126*	-.060	-.017	-.044	.185**	.172**	.254**	1			
20. Career	4.31	1.65	.424**	.086	.029	.436**	.173**	.210**	.223**	.288**	.317**	.284**	.265**	.447**	.419**	-.034	.180**	-.181**	-.118*	-.338**	-.128*	1		
21. Mobility	2.22	1.38	.269**	.045	-.165**	.270**	.027	.222**	.355**	.291**	.211**	.324**	.101	.173**	.381**	-.096	-.209**	.015	.120*	.011	.092	.177**	1	
22. Finance	4.60	1.41	.060	-.082	-.040	.283**	.074	.163**	.158**	.163**	.219**	.210**	.136*	.221**	.244**	.035	.033	-.055	-.012	-.210**	-.026	.415**	.083	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Chapter Five: Analysis and Findings – Structural Models

5.1 Introduction

This chapter discusses the modalities of data analysis and presents the findings. The hypotheses were formulated as a result of the evidenced-based review of published articles and they are broadly related to the psychological mechanisms and individual level organisational behaviour associated with an autonomous reflexivity intervention when the context is supportive. To examine the structural relationships, composite scores for the reflective constructs imputed in AMOS once the validation procedures were completed, were used. The formative construct, autonomous reflexivity, was represented as an aggregated composite construct and treated as a reflective first order variable. The measure was designed to capture between respondents differences in strength of autonomous reflexivity. Examination of the structural relationships was conducted in AMOS 22.0.0 employing the Maximum Likelihood (ML) estimation technique and Bollen-Stine Bootstrapping method to correct for non-normality.

5.2 Model AR-PC

The full structural model (Model AR-PC) is shown in Figure 11; the model was constructed by emitting structural paths from AR to the four composite 1st order factors of resilience, self-confidence/efficacy, hope and optimism. Education level, tenure in organisation, tenure in post, age, sex, fractured reflexivity, and meta-reflexivity were controlled for on the dependent variables. The initial estimate of the model suggested that the fit could be improved if the residuals of the four psychological measures were allowed to correlate. According to the positive organisational scholarship (POS) literature (Seligman et al., 2005), resilience and optimism along with self-confidence/efficacy and hope share the same underlying theoretical commonality (Luthans et al., 2007), thus allowing those residuals to correlate seemed theoretically acceptable. CFA of the model yielded significantly good fit indexes: χ^2 (14) = 30.22, $p < 0.001$, NNFI = 0.98, CFI = 0.99, RMSEA = 0.06, SRMR = 0.05. Although the chi-square significance value suggests rejection of the null hypothesis of exact fit (Barrett, 2007), inspection of the standardised residual matrix did not show any evidence of misfit in the residual matrix that could not be attributed to theoretically trivial influences (Millsap, 2007). According to Bentler (2007), a good model will have small residuals on average, and even the largest residuals will be fairly small. Indeed, as can be observed in Table 52 in MA most of the residual covariances displayed fairly small values mostly in the region of zero with the largest

being 2.65. On this basis it can be discerned that the model showed a good approximation of an exact fit model.

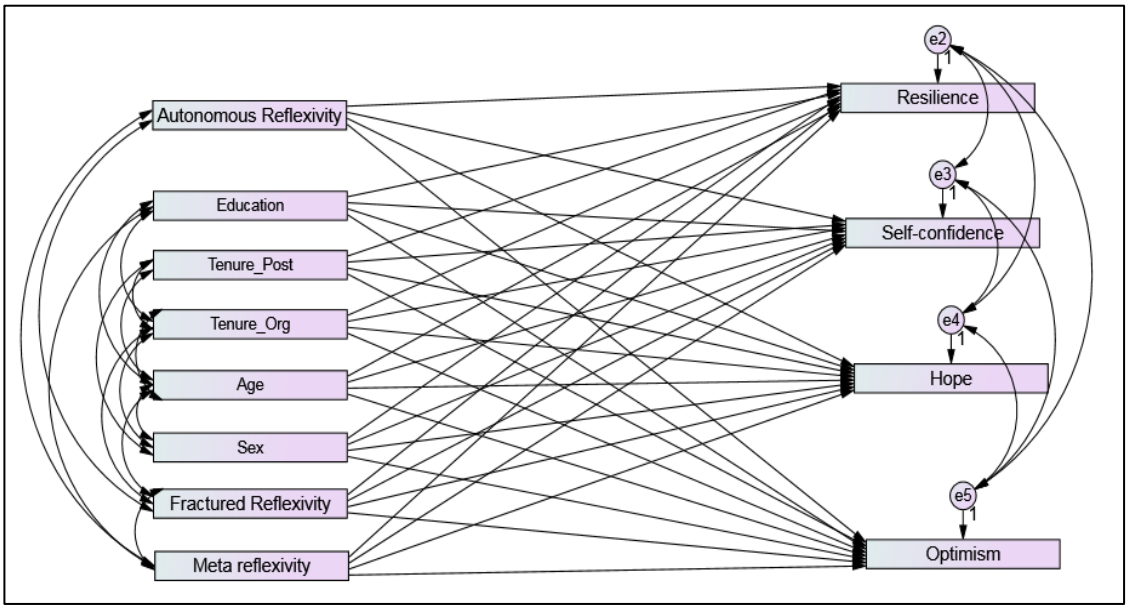

Figure 11: Input Model AR-PC - Relationship between AF and components of PsyCap

The Bollen-Stine Bootstrapping procedure was performed to test the null hypothesis that the model was correct as recommended for multivariate nonnormality in Gold et al. (2003). The test was significant at p = 0.00, thus rejecting the alternative hypothesis and accepting that the model was indeed correctly fitted. The sample distribution associated with the bootstrapping procedure is shown in Figure 12.

	4.303	|*
	8.598	|******
	12.894	|**********
	17.190	|**********
	21.486	|**********
	25.782	|*********
	30.078	|****
N = 2000	34.373	|**
Mean = 18.887	38.669	|*
S. e. = .146	42.965	|*
	47.261	|*
	51.557	|
	55.852	|
	60.148	|

Figure 12: ML discrepancy (implied vs sample) - Model AR-PC

The standardised regression weights of the structural paths from the predictor and control variables to the dependent variables are shown in Table 32. As can be observed from the

table, there was strong support for hypotheses H_1 to H_4, specifically endorsing the notion that an autonomous reflexivity intervention in the workplace tends to predict resilience, self-confidence/efficacy, hopefulness, and optimism. In general, some of the control variables did show significant relationships with the dependent variables in this model, namely gender, tenure in post, fractured reflexivity, meta-reflexivity and the level of education attained.

Table 32: Regression Weights and R^2 for Model AR-PC

	Resilience	**Self-confidence**	**Hope**	**Optimism**
AR	.224*	.284*	.365*	.218*
Education	.110**	.066	.099**	.108**
Tenure_Post	-.025	-.147**	-.087	-.005
Tenure_Org	-.059	-.003	-.003	-.001
Age	.030	.036	.076	.020
Gender	.063	.145*	.082[a]	-.004
FR	-.356*	-.348*	-.236[*]	-.322*
Meta	.033	.073	.051	.132**
R^2	**.236**	**.290**	**.266**	**.186**

Significant: *p < .01; **p < .05; [a] p < .10

The results show that male respondents perceived themselves to be more self-confident/efficacious than their female counterparts and slightly more hopeful. People who spend longer in a particular post seemed to be less confident than those with shorter tenure. As regards education, it was positively related with most of the psychological capacities with the exception of self-confidence/efficacy. The results for fractured reflexivity (FR) suggest that respondents who scored high on the FR scale did not in the main think of themselves as custodians of positive psychological capacities; particularly, there were strong, negative and significant associations between fractured reflexivity and resilience, self-confidence, hopefulness and optimism. On the other hand, meta-reflexivity appeared to be related to optimism ($\beta = 0.13$, $p < .05$). Values of R^2 for the dependent variables ranged from 0.19 to 0.29, suggestive of medium to relatively large effect sizes as informed by Cohen (1992). The path diagram with path coefficients (βs) for Model AR-PC is shown in Figure 13.

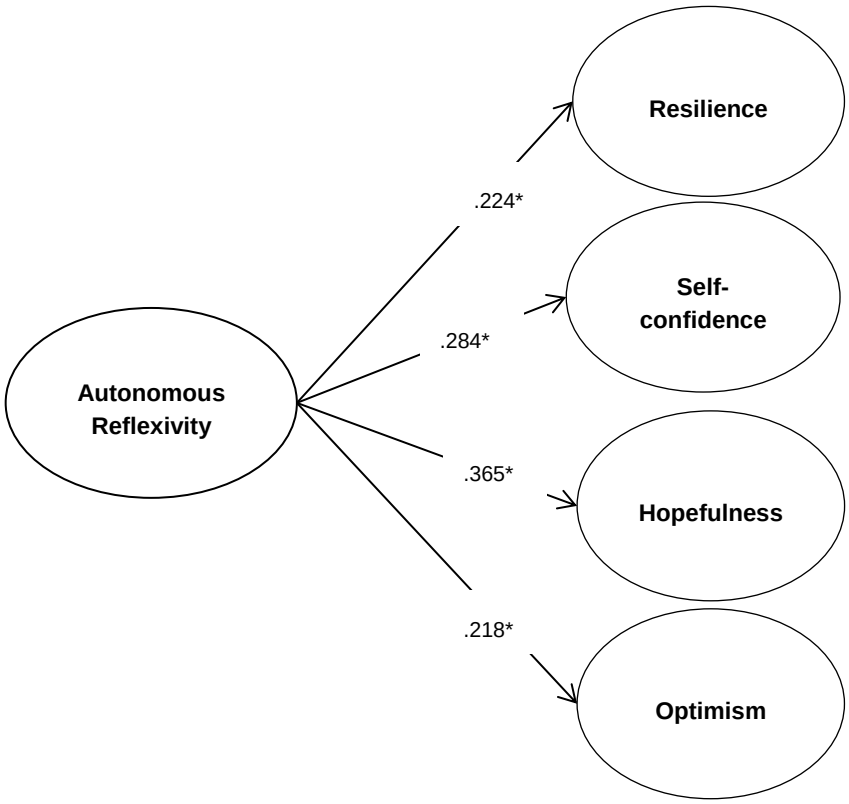

Figure 13: Path Coefficients for Model AR-PC
Path coefficients significant at *p < .01

5.3 Model AR-COCD

The next model (Model AR-COCD) analysed was to examine the direct effects of the two predictor variables, that is, climate of organisational contextual discontinuity and autonomous reflexivity on the dependent variables. The model was constructed by fitting structural paths from the COCD construct and the AR construct to PsyCap, task performance, job satisfaction, innovativeness, fear of change and 'value work.' The same variables as mentioned above were controlled for on the dependent variables (see Figure 14). The results of the initial estimate suggested that the data fitted rather poorly to the model. Inspecting the modification indices revealed strong inter-correlation relationships between the residuals of PsyCap, job satisfaction, performance and innovativeness.

The PsyCap literature instructs on the central role of work related performance and job satisfaction in the validation of the PsyCap construct (e.g., Avey, 2014; Luthans et al., 2007; Luthans et al., 2013; Youssef & Luthans, 2007). PsyCap has also been shown to relate to innovation (Luthans et al., 2011) at the level of the individual, with other studies showing that PsyCap plays a mediating role between trust in organisation and resistance

to change (Avey et al., 2008; Saruhan, 2013). Thus, as Newman et al. (2014) summarise, these variables constitute the nomological network of constructs to which PsyCap is most closely related. On the strength of these extant findings, the intercorrelations between the residuals of PsyCap, job satisfaction, performance and innovative behaviour, and between PsyCap and FOC were allowed. The initial model estimate also suggested that the fit of the model could be improved if the residuals of 'value work' and job satisfaction were allowed to correlate. It is not too difficult to come to the conclusion that people would find more satisfaction at work when they attach a significant importance to it. Consequently, the two respective residuals were allowed to freely correlate in addition to the correlations between the residuals of PsyCap and the constructs in its nomological network.

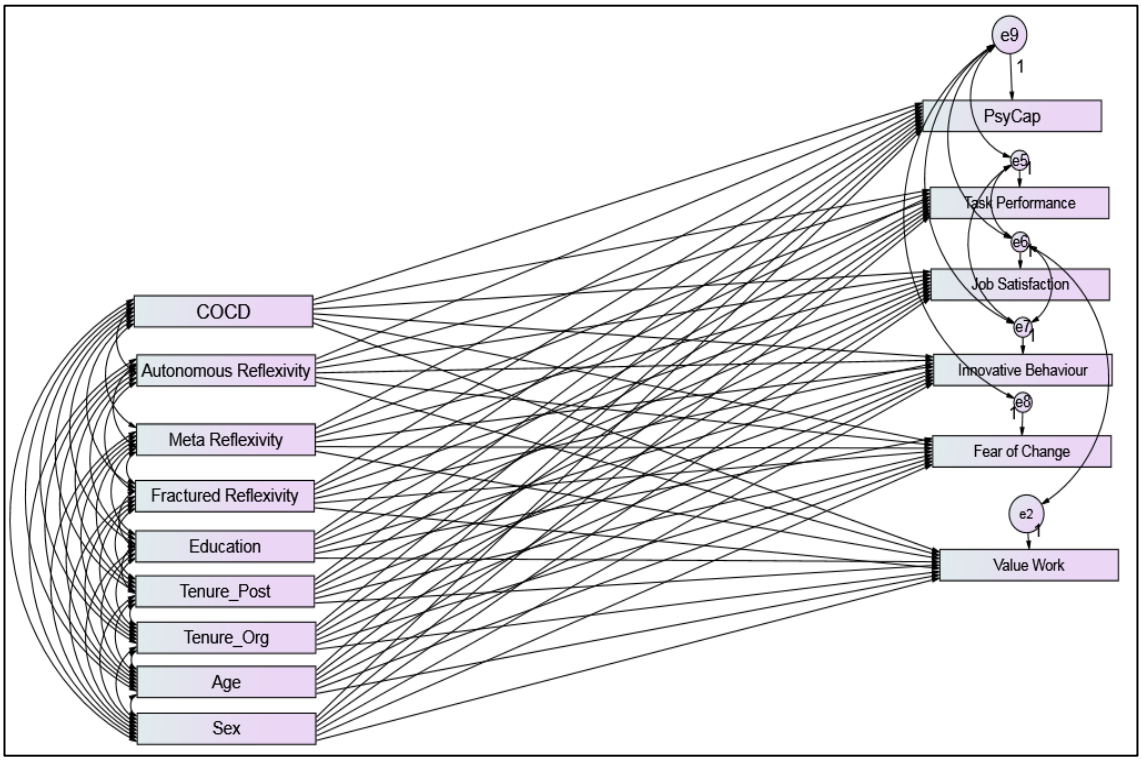

Figure 14: Input Model AR-COCD – Direct Effect of COCD and AR

After allowing for the correlations of residuals the fit estimates for the model improved to be in line with general recommendations: χ^2 (7) = 20.02, p < .01, NNFI = 0.99, CFI = 0.99, RMSEA = 0.07, SRMR = 0.02. The Bollen-Stine Bootstrap was significant at p = 0.02 supporting the hypothesis that the model was correctly fitted. The path coefficients and significance values are recorded in Table 33. Based on the values in Table 33, the experience of contextual discontinuity at work was related to PsyCap (H_{12}), task performance (H_{13a}), job satisfaction (H_{14a}), and innovativeness (H_{15a}). Furthermore, the results suggest that the experience of contextual discontinuity at work predicted 'value

work.' Although this was not a hypothesised relationship the result suggest that experience of autonomy support at work tended to make the job more enjoyable and thus more valued.

Table 33: Regression Weights and R^2 for the Model AR-COCD

	PsyCap	**Task Performance**	**Job Satisfaction**	**Innovative Behaviour**	**Fear of Change**	**Value Work**
COCD	.374*	.332*	.550*	.434*	.003	.342*
AR	.237*	.189*	.257*	.255*	-.076	.369*
Education	-.026	-.039	-.011	.131*	.012	-.001
Tenure_Post	-.081	.012	-.056	-.068	.223*	-.008
Tenure_Org	.038	.063	.099[a]	.025	.031	.006
Age	.112**	.040	.100**	-.003	-.143*	-.232*
Gender	.026	-.184*	-.160*	-.053	.016	-010
FR	-.295*	-.119*	-.103*	-.182*	.472*	.086[a]
Meta	.058	-.044	-.025	.031	.020	-.020
R^2	**.379**	**.236**	**.483**	**.364**	**.323**	**381**

Significant: *p < .01; **p < .05; [a] p < .10

The relationship between COCD and fear of change was not supported. With the exception of fear of change (H_{9a}) all the hypotheses suggesting a positive relationship between AR and the dependent variables were supported. In particular the findings indicate that AR was positively related to task performance (H_{6a}), job satisfaction (H_{7a}), and innovative behaviour (H_{8a}) in the workplace. Furthermore, the most powerful effect of autonomous reflexivity was on valuing work (H_{10}), suggesting that respondents who viewed themselves as strong practitioners of the autonomous mode valued their work particularly highly.

In terms of the control variables, there was support for a positive relationship between education level and innovativeness. Tenure in post was significantly related to fear of change whereas tenure in organisation displayed a weak relationship with job satisfaction, significant level of $p < 0.10$. Age accounted for a positive relationship with both PsyCap and job satisfaction whereas it showed a negative relationship with fear of change. Age also displayed a negative but significant relationship with work suggesting that older respondents were less concerned with their work than the younger ones. Fractured reflexivity displayed negative and significant relationships with PsyCap, job satisfaction, task performance and innovativeness and a positive one with fear of change. As for meta-reflexivity, no statistically significant relationship was observed. The R^2 values ranged from 0.24 to 0.48 indicating strong explanatory power of the model. The residual

covariances for this model were generally small and tended to diminish towards zero (See Table 53 in MA).

5.4 Causal Path between AR and COCD: Theoretical Considerations

A mediated relationship suggests that the effects of one variable are transformed by the presence of another (Buchholtz et al., 1999). To Baron and Kenny (1986: 1173), a mediator functions as a third variable representing "the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest." As such, testing mediation effects is viewed as important in providing a more detailed understanding of relations among the study variables (MacKinnon & Fairchild, 2009). This is indeed appropriate for this study given the accentuated emphasis on the psychological mechanisms of autonomous reflexivity. In fact, mediation models are widely used (Fritz & MacKinnon, 2007) and are particularly common in organisational behaviour, human resource management, industrial and organisational psychology, and a host of other fields (Stone-Romero & Rosopa, 2010).

The advent of more sophisticated analytical tools, such as the various SEM applications (e.g., AMOS, LISREL, M-PLUS, etc.), means that increasingly mediated models are being examined as structural models. In SEM, structural models are distinguished as recursive or non-recursive. A model is considered recursive when the paths between constructs all proceed from predictor construct (antecedent) to the dependent or outcome construct (consequences) (Hair et al., 2010), which means the model does not recognise reciprocal causation between two latent variables (Holland et al., 2004). A recursive model is also known as a unidirectional model. A non-recursive model is more complicated (Bollen, 1987) as it contains feedback loops (Bentler & Raykov, 2000). A feedback loop exists when a construct is seen as both a predictor and an outcome of another single construct (Hair et al., 2010). Because of this, a recursive model is also known as a feedback or reciprocal model.

In general, assumptions of unidirectionality prevails in empirical examinations, this means that recursive models are more commonly used to test for mediated effects in SEM. However, as observed by Martens and Haase (2006), often alternative theoretical models to the one being tested are equally plausible. This is particularly true when dealing with the mechanisms of human behaviour. Perhaps the most notable example is illustrated in Bandura's (1988; 1989; 2001) social cognitive theory. In his seminal writings, Bandura argues that behaviour, cognitive, and other personal factors, and environmental events all

operate as interacting determinants that influence each other bi-directionally. Yet, with few exceptions mediation models involving self-efficacy are tested as recursive models.

The reason for this could be attributed to the fact that most research use cross-sectional data. The use of cross-sectional data for what is essentially a longitudinal examination is not a practice that is particularly looked upon favourably, if anything purely from a model identification perspective. Fitting an SEM model to the actual dataset is fraught with a myriad of complications, for example, Muthén et al. (1987) have observed that significant missing data result in convergence failures, biased parameter estimates, and inflated fit indices. Furthermore, under-identified models may not converge during model estimation, and when they do, the parameter estimates they provide are not reliable and overall fit statistics cannot be interpreted (Rigdon, 1995).

It is believed that non-recursive models add an additional level of problems, including insufficient instruments to ensure an identified model, multicollinearity, and the possible need to allow for correlated errors (Martens & Haase, 2006; Schaubroeck, 1990). It therefore comes as little surprise that Hair et al. (2010) have recommended a wholesale avoidance of non-recursive models, and in particular with cross-sectional data. However, despite all these difficulties, Martens and colleague believe that "the benefit of testing non-recursive models, which are often theoretically necessary to give the full account of a psychological process or mechanism, far outweighs the burdens of solving the technical analytic problems" (Martens & Haase, 2006: 904).

The notions of autonomous reflexivity and contextual discontinuity are fairly new concepts but the theoretical rationale, as well as emerging evidence from the realist review suggest that the two constructs would exist in a dynamic relationship. As such, it was hypothesised (H_{11}) that autonomous reflexivity and organisational contextual discontinuity would tend to exert causal influence on each other. Specifying the relationships between AR and COCD as non-recursive thus provides a pathway to understanding the relative influence of the constructs on each other. To ensure that a non-recursive model is estimable in SEM the addition of exogenous variables is required. These variables are called instrumental variables (Chang et al., 2007). An instrumental variable is an exogenous variable that is directly related to one of the endogenous variables and unrelated or only indirectly related to the other (Rosenfeld et al., 2001), and their presence ensures that the model can be estimated (Martens & Haase, 2006).

5.4.1 Exogenous Influence on Autonomous Reflexivity

Archer's work on internal conversation has revealed fractured reflexivity as the antithesis of autonomous reflexivity. It was expected that FR would be negatively related to AR and thus a candidate for the instrumental variable. On other hand, meta-reflexivity shares with autonomous reflexivity a desire to engage in long and protracted lone internal conversations. On this observation it was expected that MR would be related to AR and hence was retained as an exogenous indicator for AR. Archer also notes that internal conversation is developmental in the sense that the dominant form may take root at different stages in life. Education is linked with mastery and efficacy and it has been argued that there is a positive feedback between performing well at school and a sense of autonomy (Guay et al., 2008). Education may therefore be viewed as enhancing self-confidence leading to the pursuit of lone challenges. As such, it was anticipated that the level of education would influence the practice of lone internal conversation.

5.4.2 Exogenous Influence on COCD

People who hold down the same job for long periods of time may be adverse to changes. It is also possible that those people are set in their routines and find comfort and security in the status quo. In other words, people with long occupational tenure may experience contextual continuity rather than discontinuity. As such it was predicted that tenure in post would be negatively related to the experience of contextual discontinuity at work. It can also be argued that as people grow older they tend to pursue stability in their jobs and are less likely to have an appetite for independent work. Indeed, in a recent cross-cultural study, Drabe et al. (2015) showed that independent work was less important for job satisfaction among older workforces in Japan. Instead, good relationship with management was shown to be important for job satisfaction among workforces in the US, Japan and Germany.

Given these observations, it was therefore predicted that as people grow older they would be more averse to contextual discontinuity at work. However, given the economic realities, the organisational context may approximate discontinuity to a greater extent than continuity in order to ensure survivability. Such experiences may be perceived as stressful to some calling on the need to cope. While the autonomous reflexives may thrive under such conditions others may need to seek for ontological security from relational means. Further still, some individuals may look in other places, such as to a faith, in order to cope with the daily hustles of organisational life. As such, it was expected that spirituality (not

taken to be the same as religion here) would play an increasing role in helping individuals navigate the ever increasing stressful environment of the workplace.

5.5 Analysis of the Non-Recursive Model

The non-recursive mediated model (Model-NRCSV) is shown in Figure 15. The model was built following the procedures detailed by Law and Wong (1999) to identify non-recursive models with cross-sectional data. The instrumental variables of education, fractured and meta-reflexivity loaded on AR while spirituality, tenure in post and age loaded on COCD, and causal arrows were drawn from AR to COCD and vice versa. The proper analysis of non-recursive models should also allow the disturbance terms of the two endogenous variables to correlate (Chang et al., 2007). Thus, as Schaubroeck (1990) recommended, the disturbance terms of AR and COCD were allowed to correlate. The non-recursive, mediated, path analytic model was then fitted by the method of maximum likelihood in AMOS 22.0.0.

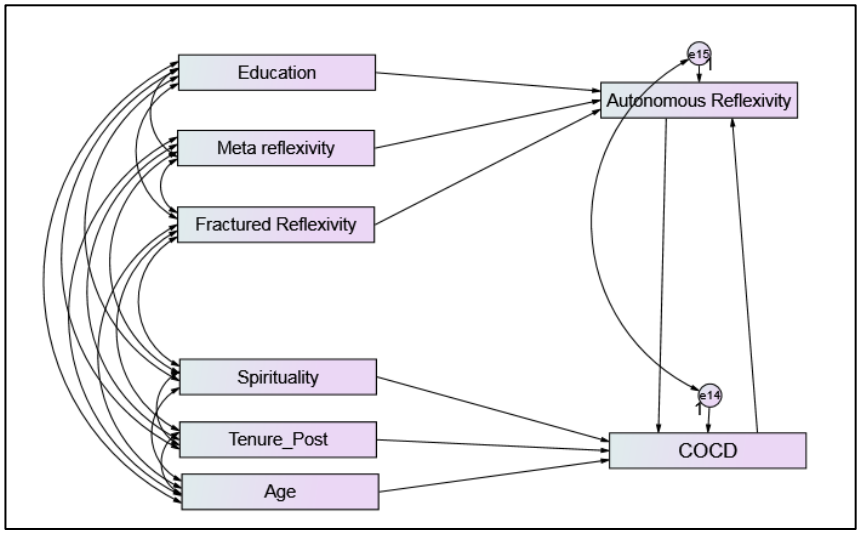

Figure 15: The Non-recursive Model-NRSCV

The Bollen-Stine Bootstrap was significant at p = 0.050. The model fit statistics suggested that the model fitted the data well: χ^2 (4) = 8.67, p > .05, NNFI = 0.98, CFI = 0.99, RMSEA = 0.06, SRMR = 0.02. Because the sole purpose of this analysis was to examine the nature of the causal paths between AR and COCD, two further models were analysed. Model-RCSV1 is a recursive mono-directional model with the causal arrow pointing from AR to COCD. In Model-RCSV2 the direction of causality was reversed such that COCD loaded on AR. The standardised coefficients and fit indices for all three models were then compared and the results are displayed in Table 34. Comparison of the path estimates suggests that the mono-directional path coefficients, i.e., COCD-AR and AR-COCD were

both significant with the path AR-COCD being the strongest (β = .52, p < .01). The reciprocal path coefficients of the non-recursive model between AR and COCD were of the same sign. The path from AR to COCD was significantly different from 0 (β = .55, p < .01) and the path from COCD to AR differed significantly from 0 (β = .40, p < .05). The analysis of path coefficients alone suggests that the non-recursive model was tenable in the sense that the reciprocal paths were both significantly different from 0.

Table 34: Comparison of CD-AR Causal Paths

Models	**χ^2**	**df**	**RMSEA**	**CFI**	**SRMR**	**Standardised β**	
						AR to CD	**CD to AR**
Model-NRCSV	8.67	4	.059	.987	.0240	.545*	.397**
Model-RCSV1	13.32	5	.070	.977	.032	.521*	
Model-RCSV2	23.72	5	.105	.948	.044		.326*

Significant: *p < .01; **p < .05

However, because the size of the respective coefficients did not appear to be close enough, it was essential to test the null hypothesis that the reciprocal paths were not equal. In order to test this hypothesis, an equality constraint was imposed on the two reciprocal path coefficients as recommended by Hayes (2009). Re-estimation of the model yielded a model fit: χ^2 (5) = 8.75. The chi square difference test, obtained from contrasting the constrained model and the freely estimated model was not significant; $\Delta\chi^2$ (1) = .081, p > .70. Result of the chi square difference test thus advocates a rejection of the null hypothesis in favour of the alternative signifying that the two reciprocal path coefficients were indeed approximately the same. This suggests that the relationship between AR and COCD could well have been reciprocal in nature as predicted by H_{11}. Further evidence of this non-recursive relationship was obtained from the model fit statistics of the three models.

Inspection of the fit indices suggests a progressively improved model fit from the Model-RCSV2 to Model-NRCSV (the non-recurrent or two-way relationship model) as can be observed in Table 34. While the results suggest that the causal influence could have been bidirectional and reciprocal (Martens & Haase, 2006) between AR and COCD, the fact

that the data analysed were only cross-sectional means that such non-longitudinal evidence should only be taken as suggestive (Pettigrew et al., 2007). Another way of looking at the problem of unpacking the AR-COCD relationship is not to start with AR but rather the other modes of reflexivity. It has been argued above that exposure to COCD might punctuate the equilibrium of an established reflexive preference towards a more autonomous form of internal conversation. This is because, COCD is resource strong, in other words, it conditions positive psychological resources related to autonomous reflexivity. Thus, the assumption is that modes of reflexivity interact with COCD leading to the development of PsyCap, which in turn fosters the development of autonomous reflexivity. To test this prediction entails examining the interaction between modes of reflexivity and context, as well as the mediated effect of PsyCap on the interaction in relation to AR. Thus, this called for a moderated mediated model.

5.6 The Moderated Mediated Model

To create the interaction variables the procedures recommended by Gaskin (2011) were followed. In the first instance standardised values for FR, MR, and COCD were computed in SPSS. New variables were then computed by multiplying the standardised values of COCD by those of FR and MR to create two new variables and these were labelled COCD_x_FR and COCD_x_MR. The model was constructed by loading the new interaction variables as well as the original variables onto PsyCap and AR, with PsyCap performing the mediator role and AR the dependent variable. The input model for this test is shown in Figure 16. The model was than fitted with ML. The Bollen-Stine Bootstrap was significant at $p = 0.01$. The model fit statistics were acceptable: χ^2 (29) = 77.84, $p < .001$, NNFI = 0.91, CFI = 0.94, RMSEA = 0.07, SRMR = 0.07. The results showed only one significant moderated path, from COCD_x_FR to PsyCap ($\beta = .15$, $p < 0.01$). This result was quite surprising as it suggested that COCD significantly dampened the negative effect of fractured reflexivity on PsyCap as illustrated in Figure 17. Inspecting the bootstrapping results was even more revealing (see Table 35).

Taking the predictors in turn, the values in Table 35 suggest that the effect of MR on AR was partially mediated by PsyCap. The interaction between MR and COCD did not result in variations in AR. In relation to FR, the results suggest that FR and AR were polar opposite as reflected by the strongly significant result ($\beta = -.36$, $p < .01$) which was slightly mediated by PsyCap.

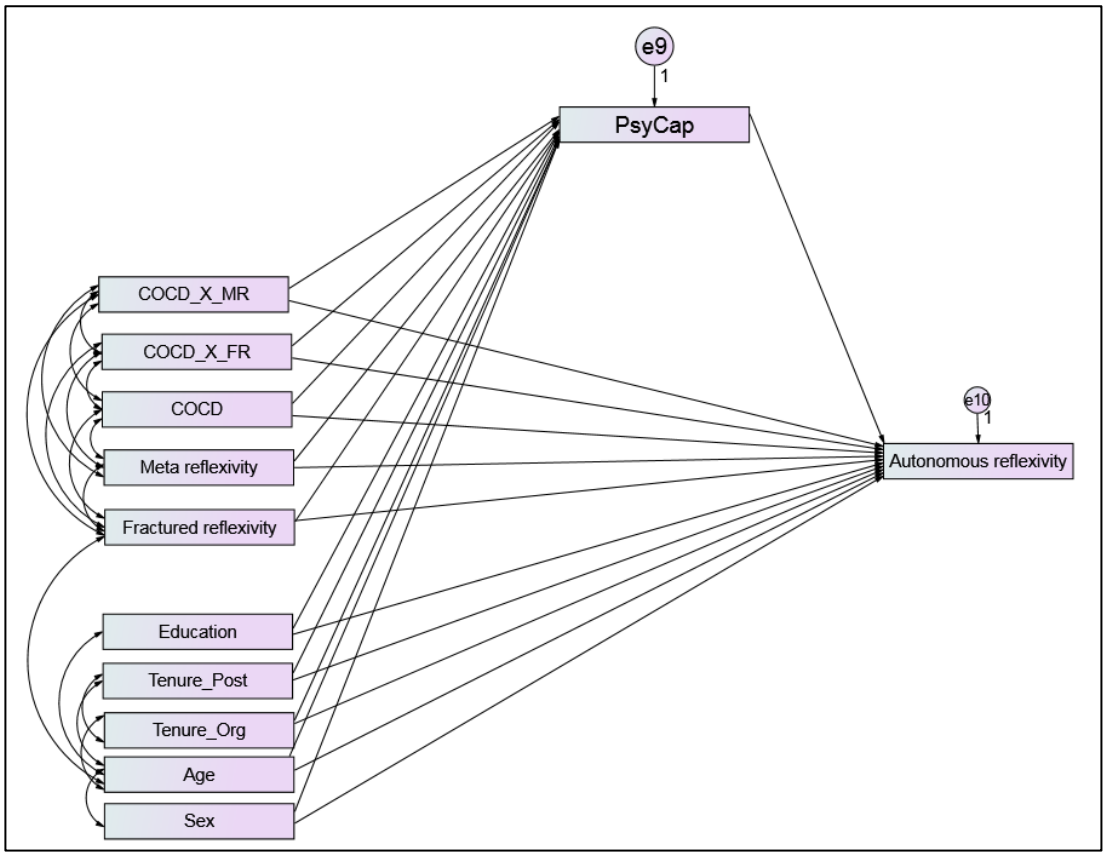

Figure 16: Input Model – Moderated Mediated Effect

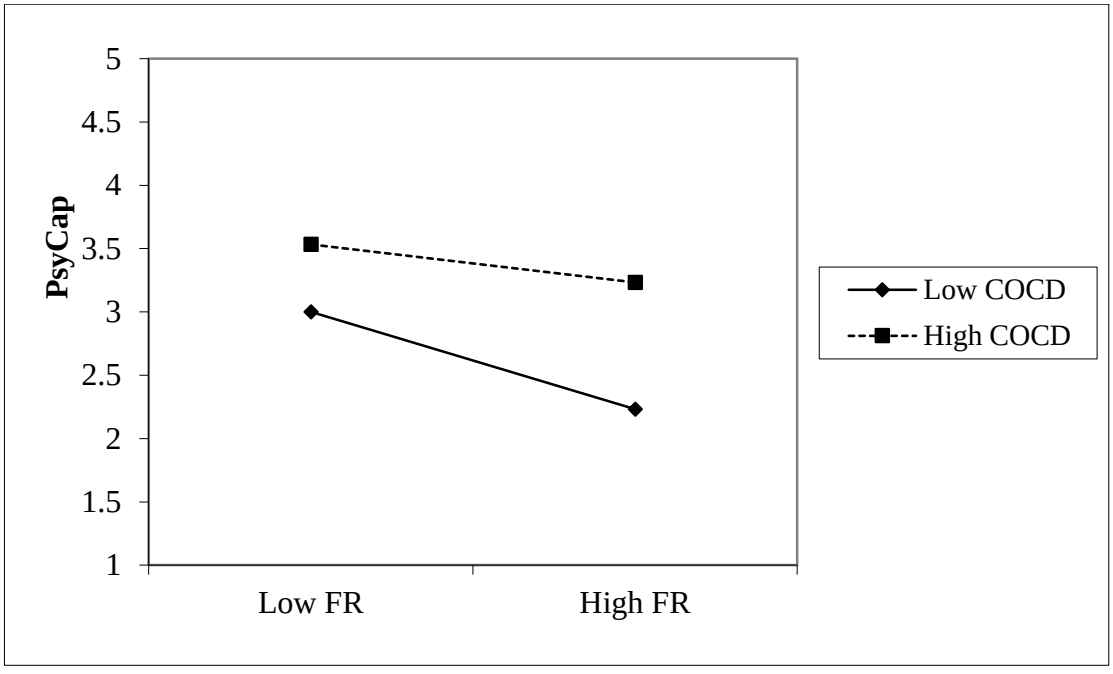

Figure 17: Moderation Effect of COCD on FR in relation to PsyCap

The most intriguing results nevertheless concern the moderated mediated relationship between COCD_x_FR, PsyCap and AR. The results show that PsyCap fully mediated the relationship between the interaction of COCD and FR on AR, in spite of the fact that no direct relationship was recorded between the interaction term and AR. This suggests that

COCD interacted with FR leading to enhanced PsyCap which in turn led to AR as previously assumed would be the case in some instances.

Table 35: Moderated Mediated Model Results

		Bootstrapping Effects with PsyCap		
Predictor Variable	Direct Effect (without PsyCap)	Direct	Indirect Two-tailed significance	Interpretation
MR	.260*	.226*	.017	Partial
COCD_x_MR	.071(NS)	.063(NS)	.666	No
FR	-.357*	-.245*	.001	Partial
COCD_x_FR	-.049(NS)	-.094(NS)	.024	Full

Significant: *p < .01; NS = non-significant

5.7 Model PC-MED: Mediation Effect of PsyCap on AR and COCD

Model PC-MED was the final formal model analysed and it served to examine the mediation effects of PsyCap on AR and COCD, in relation to performance, job satisfaction, innovative behaviour and fear of change in the workplace. Model PC-MED is shown in Figure 18 and was conceptualised as a non-recursive model.

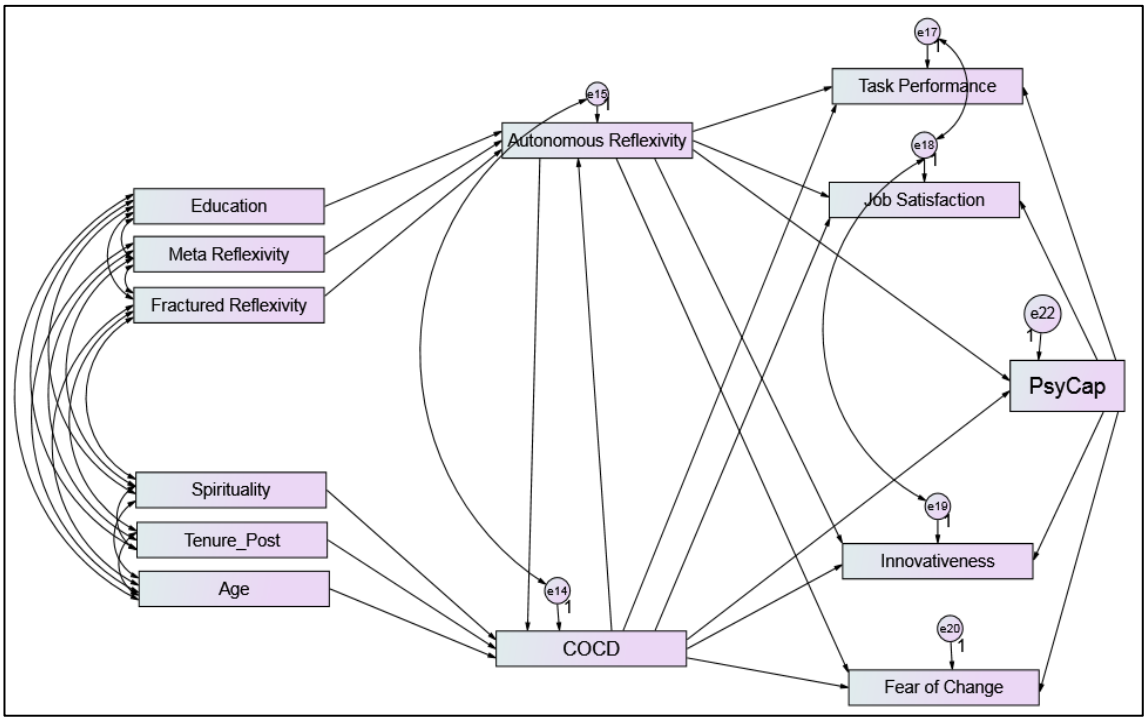

Figure 18: Input Model – Mediation of PsyCap on AR and COCD

In order to assess the indirect effects of AR and COCD on the dependent variables, structural paths were also constructed from PsyCap to the dependent variables as shown.

Controls were not applied in this model as the aim was to investigate the mediation effects of PsyCap. The procedure for testing mediation effects was popularised by Baron and Kenny (1986). Known as the causal steps approach it requires the researcher to estimate each of the paths in the model and then ascertain whether a variable functions as a mediator by seeing if certain statistical criteria are met (Hayes, 2009). In spite of its widespread use, the two-stage regression, causal step approach has been accused of making strong and largely unrealistic assumptions about the distribution of mediating variables (e.g., Hogan & Liu, 2008) without actually quantifying the intervening effect it is attempting to test (Hayes, 2009). Of the several options that are purportedly superior to the Baron and Kenny methodology bootstrapping appears to be winning the battle (Hayes, 2009). Thus, to test the direct and indirect effects of AR and COCD, the non-recursive, path analytic, Model PC-MED was fitted by the method of maximum likelihood in AMOS 20.0.0 employing the percentile bootstrapping method with 5000 bootstrapping samples as recommended in Hayes (2009).

The non-recursive model fitted the data particularly well: χ^2 (34) = 77.54, p = < .001, NNFI = 0.95, CFI = 0.97, RMSEA = 0.06, SRMR = 0.04. Although the chi-square test rejected the hypothesis of 'exact fit' between model and data, inspection of the standardised residual matrix did not suggest any evidence of misfit in the residual matrix that could not be attributed to theoretically trivial influences (Millsap, 2007). Most of the values for residual covariances were small with the largest being 2.2 (Table 54 in MA). Table 36 records the direct path coefficients for the non-recursive model. The results indicate that the strength of the direct relationships between AR and the dependent variables was attenuated with the introduction of PsyCap as a mediator. In the case of task performance, the relationship changed from a significant to a non-significant one. As for COCD, the direct relationships with the outcome variables were reduced in strength with the introduction of PsyCap as the mediator variable. The direct relationships between PsyCap and the dependent variables were all supported as predicted by hypotheses H_{6b}, H_{7b}, H_{8b}, and H_{9b}.

The results of the mediation analysis between the predictors (i.e., AR and COCD) and the dependent variables with and without the PsyCap mediator effect are provided in Table 37. The table also displays the two-tailed significance level of the bias corrected percentile method associated with the bootstrapping procedure. Taking the two predictors in turn, the values in Table 37 suggest that the effect of AR on task performance was fully mediated by PsyCap as predicted by H_{6c}.

Table 36: Results for Non-Recursive Model PC-MED

	AR	COCD	PsyCap	TPERF	JOSAT	INOV	FOC
AR		.545*	.225*	.058	.180*	.181*	-.009
COCD	.397*		.347*	.118*	.392*	.288*	.091[a]
PsyCap				.559*	.375*	.436*	-.239*
Education	.095**						
MR	.161*						
FR	-.326*						
Spirituality		.189*					
Tenure_Post		-.001					
Age		.124*					

Significant: *p < .01; **p < .05; [a]p < .10

Table 37: Mediating Effects of PsyCap on AR and COCD

			Bootstrapping Effects with PsyCap		
Predictor Variable	Outcome Variable	Direct Effect (without PsyCap)	Direct	Indirect Two-tailed significance	Interpretation
Autonomous Reflexivity (AR)	**TPERF**	.224*	.058(NS)	.001	Full
	JOSAT	.297*	.180*	.001	Partial
	INOV	.310*	.181*	.001	Partial
	FOC	-.065(NS)	-.009(NS)	.001	?
Climate of Organisational Contextual Discontinuity (COCD)	**TPERF**	.322	.118	.001	Partial
	JOSAT	.538	.392	.001	Partial
	INOV	.446	.288	.001	Partial
	FOC	.002(NS)	.091	.001	Full

Significant: *p < .01; NS = non-significant

The influence of AR on innovativeness and job satisfaction appears to lessen when the paths were mediated through PsyCap. This suggests a partial mediation effect of PsyCap on AR for these two outcomes as predicted by H_{7c} and H_{8c} respectively. The effect of PsyCap on AR in relation to fear of change was less straightforward. In the first instance the direct effect of AR on FOC does not indicate that a significant relationship existed between the two constructs. However, the significance level ($p < .01$) of the indirect effect through PsyCap suggests a fully mediated effect. As for the effect of PsyCap on COCD, the values in Table 37 suggest a partial mediation of the former on the latter in respect to task performance, job satisfaction and innovativeness as predicted by hypotheses H_{13b}, H_{14b}, and H_{15b} respectively. Based on the bias corrected percentile significance level, there appears to be an indirect relationship between COCD and FOC, fully mediated by PsyCap, although a direct effect between the two constructs was not observed.

The lack of a significant direct effect of AR on FOC was surprising especially given the fact that the correlation matrix shown in Table 31 suggests a significant bivariate correlation coefficient between the two constructs (r = -.18, p < .05.). It may well be possible that a confounding interactive effect was causing this unexpected result. A possible suspect could have been fractured reflexivity (FR), it is worth reminding that in Model AR-COCD, FR was strongly associated with FOC (β = .47, p < .01). An interaction between AR and FR in relation to FOC was therefore highly probable. After all, the reflexive modes are not taken to be mutually exclusive, and as discussed, all modes are practiced by all humans albeit to varying degrees. As such, it is therefore not beyond the realm of possibility that while some people may perceive themselves as autonomous they may also experience fractured thoughts in relations to certain aspects of their lives, such as ongoing changes at their workplaces.

In particular, cases where changes are perceived as more constraining than enabling towards 'projects' may contribute to nudge the autonomous reflexives into fracturing mode. Archer has referred to these instances as 'impeded' autonomous reflexivity. The effect of AR on FOC independent of FR is addressed in the post-hoc analysis section. The final step in the mediation analysis involved examining the unique variance PsyCap contributed to explaining the total variance in the dependent variables. This examination was completed by adopting an effect size approach in line with Cohen's (1992) recommendation. The effect size was thus calculated employing the following formula:

$$\textbf{Effect size}, f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}} \qquad \textbf{Equation 3}$$

Drawing on Cohen's insights, the values in Table 38 suggest a large effect size associated with PsyCap in respect of task performance. The effect sizes for job satisfaction and innovative behaviour respectively indicate medium effects while a small effect size in relation to fear of change. Overall, these results provide support for the hypothesised model (Luthans et al., 2013).

Table 38: Effect Size due to PsyCap

	$R^2_{included}$	$R^2_{excluded}$	Effect Size	Interpretation of effect
TPERF	.414	.189	0.384	Large
JOSAT	.539	.455	0.182	Medium
INOV	.499	.363	0.271	Medium
FOC	.361	.330	0.049	Small

5.8 Post Hoc Analyses

A post hoc model was tested to determine the effect of autonomous reflexivity on fear of change independently from the effect of fractured reflexivity. The analysis was conducted as a 4-steps hierarchical regression. In the first step, education, tenure in organisation, tenure in post, age and sex were entered. In the second step, AR and COCD were entered followed by MR and FR in step 3. There was a suspicion that FR was interacting with AR, as such, an interaction variable was created to test for any moderating effect. To create this interaction variable (AR_x_FR) the procedures recommended by Gaskin (2011) and as detailed above were followed. This new variable was entered in step 4 of the hierarchical regression. The results of the hierarchical regression analysis are provided in Table 39.

Table 39: Effect of Autonomous Reflexivity on Fear of Change

	Fear of Change			
	Step 1 β	Step 2 β	Step 3 β	Step 4 β
Education	-.040	.004	.022	.022
Tenure in post	.257*	.254*	.223*	.218*
Tenure in organisation	-.041	-.014	.042	.043
Age	-.303*	-.304*	-.147*	-.148
Sex	.017	-.002	.009	.012
Autonomous reflexivity		-.176*	-.076	-.077
Cont. Discontinuity		-.054	.002	.001
Meta-reflexivity			.024	.031
Fractured reflexivity		.	.484	.475
AR_x_FR			.	.070
$\mathbf{R^2}$	.093*	.129*	.329*	.334*
$\mathbf{\Delta R^2}$		.036*	.201*	.005

Significant: *p < .01

As can be seen in this table, in step 2, AR accounted for variance in FOC even after the effects of the control variables were taken into account. However, following the addition of FR and MR in step 3 the predictive power of AR was negated. The addition of the interaction term in step 4 did not significantly account for variance in FOC (β = .07, p = .12). The results of the hierarchical regression do indeed support AR as an independent predictor of FOC. Although the interaction term was not significant, the results do signal a degree of interaction albeit in the slightest. The results also show that COCD was not a predictor of FOC. This suggests that the effect of COCD on FOC was significant only

when the experience led to the strengthening of positive resources. On the other hand, the results indicate that autonomous reflexivity was indeed a predictor of fear of change whose effect was fully mediated by PsyCap.

Finally, the mediating effects of AR on COCD and vice-versa were examined in relation to PsyCap and the individual level organisational outcomes. The results of the bootstrapping procedure as well as the corresponding direct effects, with and without the respective moderating variables, are recorded in Table 40. The values in the table reveal that the mediating effects were negligible when COCD acted as mediator. When AR performed the mediator role the indirect effects of COCD were insignificant. Thus, when AR and COCD performed the role of mediator their presence did not influence the strength of the outcome variables in the slightest. Therefore, although AR and COCD appear to share in a reciprocal relationship, their explanatory powers appear to be independent of each other.

Table 40: Mediating Effects of AR on COCD (and vice versa)

		Bootstrapping Effects			
Predictor Variable	Outcome Variable	Direct Effect (without COCD)	Direct effect (with COCD)	Indirect Two-tailed significance	Interpretation
Autonomous Reflexivity (AR)	**PsyCap**	.260*	.236*	.001	
	TPERF	.223*	.189*	.001	
	JOSAT	.291*	.256*	.001	
	INOV	.310*	.252*	.001	
	FOC	-.056(NS)	-.076(NS)	.947	
Predictor Variable	Outcome Variable	Direct Effect (without AR)	Direct Effect (with AR)	Indirect Two-tailed significance	Interpretation
Organisational Contextual Discontinuity (COCD)	**PsyCap**	.371*	.371*	.202 (NS)	
	TPERF	.323*	.323*	.202 (NS)	
	JOSAT	.533*	.533*	.202 (NS)	
	INOV	.451*	.451*	.202 (NS)	
	FOC	.003(NS)	.024 (NS)	.434 (NS)	

Significant at *p < .01; NS = non-significant

5.9 Chapter Summary

In this chapter the hypotheses proposed by the realist review have been analysed. In the main, the results of the structural equation models confirm the tendencies which emerged during the evidence-based review. Although utmost care was exercised to uphold robustness, the findings remain at best potentially tentative. Of note, the reciprocal

relationship between autonomous reflexivity and contextual discontinuity requires longitudinal data to improve the confidence in the results. Nevertheless, in the absence of prior quantitative investigation of internal conversation, the findings of this work should be seen as a platform for future research. The path coefficient model showing direct relationships with PsyCap as mediator is shown in Figure 19. Table 41 keeps a record of the updated status of the hypotheses following statistical testing. The findings are discussed more substantively in the next chapter.

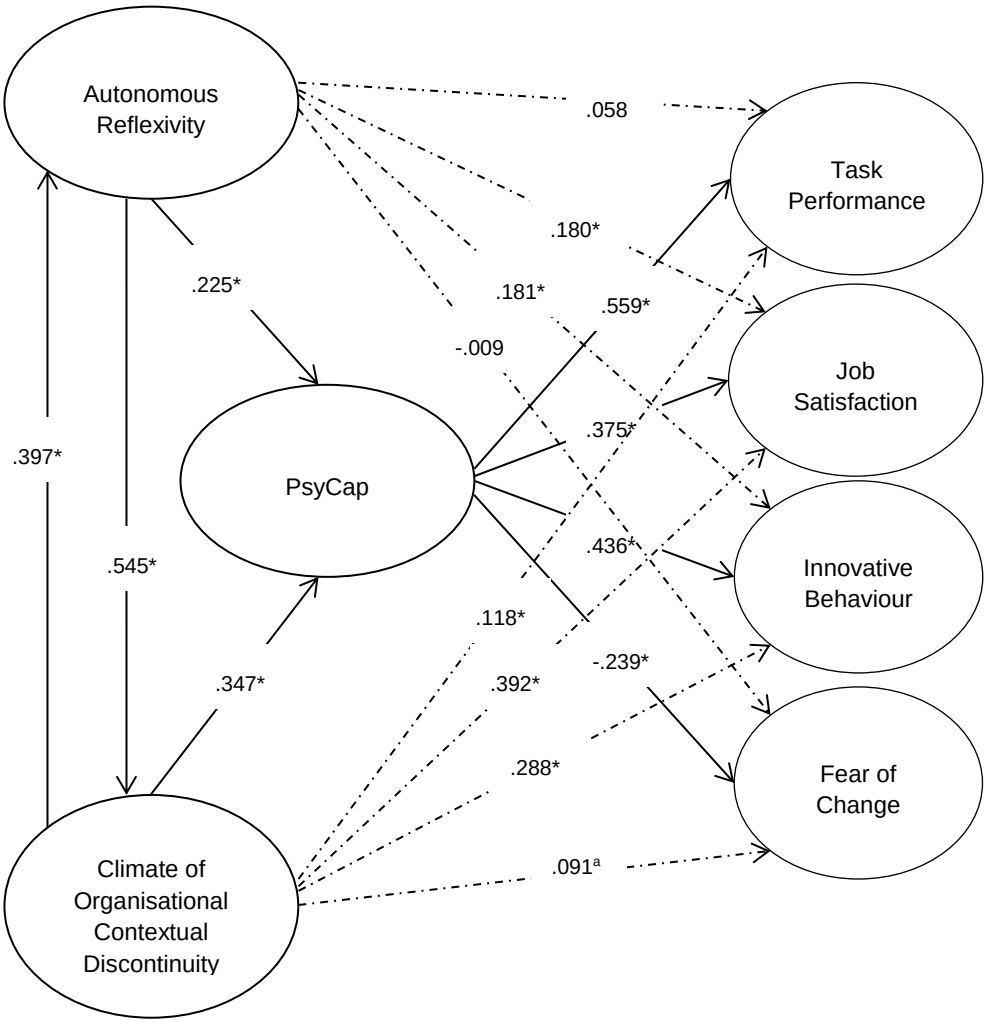

Figure 19: Standardised Path Coefficients for Model PC-MED

Note: Path coefficients significant at *p < .01; [a]p < .10; Solid lines = direct effects; Dashed lines = direct effects with mediator

Table 41: Schedule of Hypotheses

	Hypotheses	Status
H_1:	Autonomous reflexivity will tend to be associated with resilience.	Supported
H_2:	Autonomous reflexivity will tend to be associated with self-confidence/efficacy;	Supported
H_3:	Autonomous reflexivity will tend to be associated with hopefulness.	Supported
H_4:	Autonomous reflexivity will tend to be associated with optimism.	Supported
H_5:	Autonomous reflexivity will tend to be associated with positive PsyCap.	Supported
H_{6a}:	Autonomous reflexivity will tend to be associated with task performance.	Supported
H_{6b}:	PsyCap will tend to be associated with task performance.	Supported
H_{6c}:	The effect of autonomous reflexivity on task performance will be mediated by PsyCap.	Supported (full mediation)
H_{7a}:	The autonomous mode of reflexivity will tend to be positively associated with job satisfaction.	Supported
H_{7b}:	PsyCap will tend to be positively associated with job satisfaction.	Supported
H_{7c}:	The effect of autonomous reflexivity on job satisfaction will be mediated by PsyCap.	Supported
H_{8a}:	Autonomous reflexivity will tend to be positively associated with innovative behaviour.	Supported
H_{8b}:	PsyCap will tend to be positively associated with innovative behaviour.	Supported
H_{8c}:	The effect of autonomous reflexivity on innovative behaviour will be mediated by PsyCap.	Supported
H_{9a}:	Autonomous reflexivity will tend to be positively associated with a positive attitude towards organisational change.	Supported
H_{9b}:	PsyCap will tend to be positively associated with a positive attitude towards organisational change.	Supported
H_{9c}:	The effect of autonomous reflexivity on positive change attitude will be mediated by PsyCap.	Supported
H_{10}:	Autonomous reflexivity will show a tendency to valuing work or career.	Supported
H_{11}:	In the organisational domain autonomous reflexivity and the experience of contextual discontinuity will exert causal influence on each other such that they will tend to exist in a reciprocal relationship.	Supported
H_{12}:	The experience of contextual discontinuity at work will tend to be positively associated with PsyCap.	Supported

	Hypotheses cont.…	Status
H_{13a}:	The experience of contextual discontinuity in the workplace will tend to be positively associated with task performance.	Supported
H_{13b}:	The positive effect of contextual discontinuity on task performance will be mediated by PsyCap.	Supported
H_{14a}:	The experience of contextual discontinuity in the workplace will tend to be positively associated with job satisfaction.	Supported
H_{14b}:	The effect of contextual discontinuity on job satisfaction will be mediated by PsyCap.	Supported
H_{15a}:	The experience of contextual discontinuity in the workplace will tend to be positively associated with innovative behaviour.	Supported
H_{15b}:	The positive effect of contextual discontinuity on innovative behaviour will be mediated by PsyCap.	Supported
H_{16a}:	The experience of contextual discontinuity in the workplace will tend to be associated with positive change attitude.	Not Supported
H_{16b}:	The effect of contextual discontinuity on positive change attitude will be mediated by PsyCap.	Not Supported
H_{17}:	COCD is a second order core construct made up of four climate dimensions of innovation/flexibility, reflexivity, autonomy and resources.	Supported

Chapter Six: Discussion

6.1 Introduction

This chapter puts the results of the various structural models analysed in the preceding chapter into context. Against the backdrop of the theoretical framework offered in Chapter 2, the findings are discussed with a view of responding to the main research questions and the research aims laid down at the start of this thesis. According to Thesis Whisperer (2012), "there are many ways to skin a discussion cat," the strategy adopted here aims at maintaining the integrity of the 'cat' in as much as possible. What is meant by this is that, in as much as possible subsections are kept to a minimum. This is with a view to provide a natural flow to the discussions in a less mechanistic way, but rather as a running commentary. Chapter 2 provides extended discussions on the findings of the realist review which led to the formulation of the hypotheses.

To avoid repetition, summaries are provided for findings already discussed, more detailed analyses target findings and hypotheses that were theoretically abstracted from the realist review phase. Furthermore, the quantitative study in this research rests heavily on the validation of the internal conversation index (ICONI). Indeed, statistical scrutiny of the measurement models associated with the four facets of the ICONI constituted a key aspect of this thesis given the lack of *a priori* evidence of such in the literature. Therefore, the discussions are initiated by the findings in relation to the psychometric properties of the four reflexive modes. This is followed by a discussion of the findings related to psychological resources with an accentuated focus on PsyCap. The relationship between AR and COCD is discussed next leading to the final section in this chapter in which all the findings are pulled together. In this section the findings are discussed in relation to the action system of autonomous reflexivity as a whole. This chapter closes with an overall summary.

6.2 Psychometric Properties of the ICONI Measurement Models

In a private conversation with Archer she confided that the ICONI had not been made available to the academic world beyond what is offered in the methodological appendix of Archer (2007a). It would thus be the first time that a third party would have the opportunity to independently subject the ICONI to statistical scrutiny. Initial inspection of the exploratory factor analysis published in Archer (2007a) provided a rough idea as to the nature of the measurement model of each of her four modes of reflexivity. In

particular, the measurement model of the autonomous mode attracted some attention as it did not appear to produce results commensurate with the conventional reflective type of construct. With this insight, additional data were collected that would enable the validation of the autonomous measurement model as a formative construct if the initial intuition was proven correct. The results of the exploratory factor analysis of the ICONI presented in Chapter 4 indeed suggest that the initial suspicion on the measurement structure of autonomous reflexivity had some merit. While the items measuring fractured, communicative and meta-reflexivity respectively, all appeared to display characteristics associated with a reflective type of latent construct, the items measuring autonomous reflexivity did not. In fact, the bivariate correlation coefficients between the items measuring the autonomous mode were generally small and mostly negative, against accepted parameters for reflective constructs. Internal reliability check, Cronbach alpha of 0.11, provided further evidence against conceptualising autonomous reflexivity as a reflective type of construct.

Archer is rather sketchy when it comes to assumptions about the nature of the measurement model of the different modes, it can nevertheless be inferred from Archer (2007a: 355) that she treats all the four modes as reflective constructs from her repeated use of the term 'average scores' when referring to the four constructs. The results of the EFA and internal reliability checks conducted in this study suggest otherwise. The results of the EFA direct that fractured and meta-reflexivity are best operationalised as reflective constructs. While the items measuring communicative reflexivity all loaded on one factor, internal reliability check returned a Cronbach alpha value of 0.45, well below the accepted threshold of 0.70 for a reflective construct. This means that more efforts need to go into formulating items with better internal consistency to adequately reflect the tendencies of communicative reflexivity whilst discriminating from the other modes. For this reason, communicative reflexivity was excluded from further analysis.

Furthermore and perhaps more importantly, the statistical tests on the measurement structure of autonomous reflexivity provided evidence to support a formative rather than reflective measurement model. The validity of the ICONI has indeed been questioned with some authors claiming that some of the statements do not seem to correspond with what they supposed to measure. For example, Dyke et al. (2012: 841) are of the view that, "despite the validity claim for the instrument, the 13-point questionnaire is difficult to align, intuitively, with the modes of reflexivity it is intended to indicate." Indeed, careful examination of the three statements measuring autonomous reflexivity suggests that while

they may well be indicative of the tendencies associated with its practice they do not seem to share an underlying commonality. The problem is further compounded by the fact that 2 out of 3 of the items are reverse-coded. It is to be noted that Archer used the scores of participants on these different modes to assign them to a particular typology. Participants were assigned as a dominant practitioner of a particular mode based on their highest score across all the modes. She then conducted interviews on the basis of this allocation from which she was able to draw conclusions about the consequences associated with the practice of each of those modes as the dominant mode. However, the results from the statistical tests conducted in this thesis, which were based on a relatively large and heterogeneous sample of the UK working population, pose serious questions to the wisdom of some of the claims made by Archer. For instance, based on the internal reliability tests, the communicative construct failed to meet with the required norm for a reflective construct whereas autonomous reflexivity displayed the characteristics of a formative construct.

In the first instance, these results suggest that communicative reflexivity failed to show internal reliability. This can potentially lead to the conclusion that any interpretations of results that rely on a classification based on the current items of communicative reflexivity are potentially questionable. In the second instance, interpretations and statistical inferences of any kind, based on the autonomous reflexivity construct on the basis of 'average scores,' are potentially misleading. In this thesis autonomous reflexivity was validated as a formative MIMIC model as shown in Figure 7, with the three indicators proposed by Archer acting as formative indicators of the latent construct with two additional reflective indicators. Such was the case, 'average scores' took on a different dimension. Rather than the arithmetic mean, the weighted mean was used to work out the average scores for the respondents. When adopted, this procedure is more likely to result in different individual scores for autonomous reflexivity, compared to arithmetic means. The implication for Archer's research is that some people could have been classed as autonomous when they were not and some others could have been excluded when they should have been included in the classification.

6.3 Autonomous Reflexivity and Positive Psychological Resources at Work

Investigating the psychological mechanisms and the associated organisational outcomes of an autonomous reflexivity intervention as well as the specificities of a supportive

context was one of the preeminent objectives of this work. Drawing on a critical realist inspired, evidence-based literature review a set of hypotheses was formulated. These hypotheses were then tested by employing SEM techniques on responses from an online, survey-based questionnaire. In the first instance, the evidence from the realist review suggests that autonomous reflexivity intervention works through positive psychological resources, Chapter 2 provides an extended discussion of these findings. The outcome of the confirmatory factor analysis of the structural Model AR-PC indeed confirms that there was a tendency for autonomous reflexivity to be associated with resilience ($\beta = .22$, $p < .01$), self-confidence ($\beta = .28$, $p < .01$), hope ($\beta = .37$, $p < .01$), and optimism ($\beta = .22$, $p < .01$) in the workplace. In her theorising, Archer (2007a) reserves her special mention of psychology to self-confidence in the making of the autonomous reflexives, the findings in this work go beyond this revealing three additional psychological resources. However, the interesting insight generated by the realist review does not reside solely in the individual psychological resources per se but rather in the higher order core capacity PsyCap believed to underlie each of these resources.

Theoretical abstraction led to the identification of PsyCap as the psychological mechanism through which an autonomous reflexivity intervention is likely to operate. The hypothesis suggesting a positive relationship between autonomous reflexivity and psychological capital (H_5) was indeed supported ($\beta = .23$, $p < .01$). Psychological capital was conceptualised as second order latent construct made up of resilience, self-confidence, hope, and optimism. Therefore, the result suggesting a positive relationship with autonomous reflexivity is hardly surprising. PsyCap is a well-established construct that represents an individual's developmental state or capacity to intentionally change behaviour (motivation) (Whatley, 2013), and has been shown to be a powerful predictor of individual level outcomes in the management and organisational studies literature.

While the predictive prowess of positive PsyCap is well articulated, much less is known in terms of its developmental correlates. Much of the literature that addresses the antecedents of PsyCap has done so with a developmental agenda in mind. Studies that focus on developing short term interventions aimed at improving the level of individual's PsyCap in the workplace, such as the PsyCap Intervention (PCI) project (e.g., Luthans et al., 2006a), are not uncommon. These interventions are designed to tap into the cognitive dimensions of these resources with the aim of stimulating their growth. In relation to the day-to-day organisational life, studies have provided evidence in the affirmative of workplace support in relation to PsyCap development in employees (e.g., Liu, 2013;

Luthans et al., 2008c). In terms of sheer numbers, leadership seems to dominate as the most studied contextual factor in relation to PsyCap development. In particular, studies have reported significant positive influence of transformational and authentic leadership behaviours on the development of employees PsyCap (e.g., Gooty et al., 2009; Jensen & Luthans, 2006; McMurray et al., 2010; Rego et al., 2012; Walumbwa et al., 2011).

Until recently, these studies have come to represent what may be considered as perhaps an overly myopic view of PsyCap development. Having said this, the main lacks in PsyCap studies appear to be more deeply rooted. The emphasis by Avey and colleagues in the concluding remark of their meta-analysis on the impact of PsyCap on employee attitudes, behaviours and performance is pertinent:

> We found very few studies that measured anything pertaining to the formation of PsyCap. In other words, few have considered what is 'to the left' of PsyCap (i.e., the antecedents in a theoretical model) (Avey et al., 2011: 148).

In particular, PsyCap research is characterised by an almost complete disregard to intrapersonal structures that may be responsible for its emergence. Avey's (2014) response to this shortcoming is indexed in two culturally diverse studies involving engineers and technicians from the US and Chinese technology employees. Taken together, the results of these two studies are consistent in exposing individual differences, measured as self-esteem and proactive personality, as the most powerful predictors of PsyCap from a host of antecedents, including leadership and job characteristics. The finding suggesting autonomous reflexivity as a predictor of PsyCap is thus consistent with Avey (2014) in so far as the explanatory power of individual differences in relation to PsyCap is concerned. Furthermore, Avey (2014) has recognised that PsyCap may well be a multi-established construct, that it, a construct established first in other domains. The findings in this work support this view and illuminates the role of social origins in shaping the resources available to individuals.

Fractured reflexivity and meta-reflexivity were added to this phase of the study for exploratory purposes on the basis of the shared experience of contextual discontinuity which went into their making. Taking the two in turn, in the first instance, the effects of fractured reflexivity on the individual facets of psychological capital were all in the negative and significant. This was expected because fractured reflexives, for reasons still undocumented, are unable to complete their internal conversation. Completion of internal conversation is central to cognitive appraisal. This ineptitude means that when faced with

environmental demands, the automatic stress response system is likely to take over in a bid to maintain homeostasis in the short term, however, to the detriment of long term wellbeing. The effect of fractured reflexivity on PsyCap was equally strong, negative and significant ($\beta = -.30$, $p < .01$). On the other hand, meta-reflexivity displayed a significantly positive relationship with self-confidence ($\beta = .11$, $p < .10$) and optimism ($\beta = .15$, $p < .05$) but not with PsyCap.

Previous studies that have looked at autonomous reflexivity have not done so with revealing the associated psychological resources in mind. Notwithstanding, close inspection of extant research findings has revealed an association between psychological strengths and autonomous reflexivity on a consistent basis, although sometimes veiled under different terminological artefacts. Thus, the findings of this work begin to shine a light on the positive psychological resources available to practitioners of autonomous reflexivity. Furthermore, while the findings illuminate PsyCap as a potential psychological mechanism of an autonomous reflexivity intervention, they also highlight the untapped potential of modes of reflexivity as a personal difference which can account for the heterogeneity in PsyCap between individuals. It therefore appears to be the case that autonomous reflexivity seems to be at work to the 'left-side' of PsyCap.

6.4 The Relationship between AR and COCD

While autonomous reflexivity seems to exude an aura of positivity, understanding what this proclivity means in terms of the occupational domain begins to address the utility of the notion of autonomous reflexivity in organisational and management studies. Drawing on the idea that people are attracted to organisations in which they believe they would fit, it has been argued that the autonomous reflexives would pursue employment opportunities in organisations they find attractive. Attractive organisations can be interpreted as an employment context perceived to be supportive of the need for autonomy and control, for instance, associated with autonomous reflexivity. As such, it was advanced that the autonomous reflexives would seek the experience of contextual discontinuity in their occupational pursuits. It has also been posited that an autonomous reflexivity intervention would more likely be summoned when the organisational context is experienced as non-routinized or in other words, discontinuous. These predictions were made on the strength of the findings of the realist review supported with some initial qualitative evidence. As a result, a reciprocal relationship was predicted between AR and COCD. However, before this relationship could be tested it was necessary to

operationalise the construct COCD, Chapter 2 provides full details about how this was approached.

In sum, COCD was defined as:

> The extent employees perceive their work environment affords them the flexibility in terms of freedom to plan, organise and pace their own activities in performing challenging tasks that they view the work experience as helping them to progressively extend their skilfulness, and also the prospect that this will continue.

COCD was operationalised as a second order, latent construct made up of four facets of organisational climate, and these were reflexivity, flexibility and innovation, resources, and autonomy. The conceptualisation of supportive climate in the like manner departs from the strong emphasis on supervisor or management support commonly associated with an autonomy supportive climate in different streams of literature (such as PsyCap and SDT). The COCD construct was conceptualised particularly to avoid the more relational type of support in mind. To examine the hypothesis related to the psychometric properties of COCD, competing measurement models were analysed through confirmatory factor analysis. The results show that the proposed four-factor solution for COCD was superior to alternative models as predicted by H_{17}, in spite of the autonomy scale being made up of only two items. The main theoretical contribution of this finding is the preliminary support for COCD as a higher-order, organisational climate dimension, potentially supportive of autonomous reflexivity, indicated by each of the climate facets of flexibility and innovation, reflexivity, resources, and autonomy

The hypothesis that COCD and AR would share in a reciprocal relationship was examined through a non-recursive structural equation model. As predicted by hypothesis H_{11}, the results of the analysis show that the two reciprocal path coefficients were both positive and significant. There are at least two ways these results may be interpreted. On the one hand, the results suggest that the autonomous reflexives would select into organisations that afford them the independence of self-expression in line with Archer's reasoning. Furthermore, once employed, the longevity of their tenure will, to a large extent, depend on the degree the organisational environment remains in alignment with their needs. They will probably seek to maintain alignment through upward mobility with a high proportion of them achieving managerial positions at a reasonably young age as observed by Archer

(2007). This can also mean that in their position of authority they are more likely to be able to influence the work climate in a manner consistent with their own values. Thus, people who are strong practitioners of autonomous reflexivity are more likely to perceive their organisational environment as enabling rather than constraining (path AR-COCD; $\beta = .55$, $p < .01$). The other side of this coin suggests that individuals who perceive their environment in terms of COCD are likely to be strong practitioners of autonomous reflexivity (path COCD-AR; $\beta = .40$, $p < .01$). However, because the starting point is autonomous reflexivity, it is difficult to claim that an institutional biography coloured by experience of contextual discontinuity leads to autonomous reflexivity or vice-versa based on these findings alone.

Moreover, Delbridge and Edwards (2013) relied on historical information to arrive at such conclusion, in this thesis the results are based on cross-sectional data. Longitudinal data are best suited to investigate the long term effects of experiences of COCD, which would, in terms of analysis, aim at capturing time-lagged causal relationships between AR and COCD. Nevertheless, approaching the COCD-AR problematic from an alternative perspective, that is, drawing on the plausibility of movement between modes, the findings are potentially equally revealing. Indeed, the results of the moderated mediated model suggest that when COCD interacted with FR, PsyCap was strengthened leading to a positive relationship with AR where a negative one previously existed. These findings thus begin to show that modes of reflexivity may not be static and may well respond to contextual exigencies in organisations. More importantly, the findings of the non-recursive model suggest congruency between AR and a context that seem to promote creativity and innovation in the workplace.

6.5 Autonomous Reflexivity in the Workplace – Summary of Findings

The theoretical framework which guided the realist review suggests that positive individual level outcomes result when AR intervenes in a pre-existing context characterised by the features of COCD. This is because, it is maintained, when these conditions are met, positive psychological resources are at hand to guide the action of individuals. This statement reflects the situated action system associated with autonomous reflexivity and is shown diagrammatically in Figure 2, which outlines the morphogenetic approach to organisational behaviour taken in this thesis. In this section the findings are discussed by pulling all the elements of the situated action system together as a coherent whole. The theoretical framework was transformed into a number

of hypotheses supported by qualitative evidence from the primary studies analysed (and quantitative in some instances). In the first instance, it was hypothesised that autonomous reflexivity would be associated with task performance (H_{6a}). The findings do indeed suggest as much. Furthermore, the findings also support the hypotheses which predicted that autonomous reflexivity would be related to job satisfaction (H_{7a}) and innovative behaviour (H_{8a}) respectively. The relationship with fear of change (H_{9a}) was only confirmed in a post-hoc analysis where the effect of AR was examined independently of FR.

These findings do indeed serve to confirm the findings of the realist review. The hypothesised relationships between COCD and outcomes were arrived at through theoretical abstraction rather than from evidence. Nonetheless, the relationships with performance (H_{13a}), job satisfaction (H_{14a}) and innovativeness (H_{15a}) were all supported. The relationship with fear of change (H_{16a}) did not hold. Similarly, the relationship between AR and PsyCap, and, COCD and PsyCap were arrived at through theoretical elaboration. The relationship between AR and PsyCap has been discussed above; COCD was also a strong predictor of PsyCap. The predicted relationships between PsyCap and the outcomes were all supported in line with previous studies. As for the mediation effects, the results show that there was partial mediation of PsyCap on COCD in relation to performance, job satisfaction and innovativeness. PsyCap fully mediated the effect of AR on performance and fear of change, although the effect on innovativeness and job satisfaction was only partially mediated. In total, the results of the quantitative analyses are largely in unison with the hypothesised relationships.

This work is driven by a scholarly interest to illuminate the psychological resources associated with autonomous reflexivity. The results suggesting only a partial mediation effect of PsyCap on AR in relation to some of the organisational outcomes is interesting and at the same time insightful as they provide an opportunity to reflect on additional potential psychological processes that may be at work during an autonomous reflexivity intervention. Arguing from a realist review standpoint, this presents an opportunity for further refinement of theory. Indeed, according to Pawson et al. (2005: S1:24), "realist review is about refining theories and second thoughts can (and should) occur at any stage as new evidence emerges." In this case it is not so much about second thoughts but rather out of a desire to paint as comprehensive a picture of autonomous reflexivity as possible that the further unpacking of the psychological mechanisms of AR is being pursued at this stage. Indeed, the mediation of AR by psychological mechanisms holds the thesis of

this work together, thus it is fitting to start the discussion by extending a theoretical reasoning for the partial mediating effect of PsyCap on AR. This is seen as essential if a comprehensive and relevant discussion of the findings as a whole is to be achieved. While the idea of internal conversation as articulated by Archer stands at arm's length from existing theories of reflexivity, the notion of an autonomous self is hardly new. In particular, the self-determination theory (SDT) celebrates the active agentic propensity of the autonomy oriented individuals. SDT is a psychological theory that focuses on the motivational implications of self-selected and dictated behaviours (Vazou-Ekkekakis & Ekkekakis, 2009). Therefore, looking to SDT has the potential to further illuminate the psychological mechanisms at work during an autonomous reflexivity intervention. In the next section this claim is further examined.

6.6 Further Unpacking the Psychological Mechanisms of AR

In the self-determination theory (SDT), human functioning is viewed through the needs satisfaction lens. In what is termed the organismic-dialectical perspective, humans aspire to a unified sense of self and integration thereof in the world. However, achieving this relative unity is not a given as it requires the active nurturing of the organism. The nutrients fulfilling this role take the shape of ambient supports for experiencing competence, relatedness, and autonomy (Deci & Ryan, 2000). The psychological needs for competence, relatedness and autonomy thus concern the deep structure of the human psyche (ibid), in other words, needs are innate to all humans cultural differences notwithstanding. It is believed that because of their evolutionary roots, needs satisfaction constitutes an integral part of the human adaptive system. Extant empirical work does indeed indicate that autonomy, competence, and relatedness predict adaptive patterns of cognitions, behaviours, and emotions (Ratelle et al., 2005), potentially underlining their explanatory power in relation to optimal functioning (Deci & Ryan, 2008).

Furthermore, to the extent needs are met is a reflection on the unitary experience of the self. An integrated self experiences little or no inner conflict, this implies that behaviours tend to be intrinsically motivated. In other words, the degree to which needs are satisfied versus thwarted (Deci & Ryan, 2008) is linked to the degree people are motivated intrinsically versus extrinsically. In sum, SDT can be viewed as a theory of motivation premised on the degree of support and fulfilment of three basic psychological needs: competence, relatedness, and autonomy (Pelletier et al., 2013). However, given contextual contingencies, basic needs are not equally satisfied in all individuals, thus,

SDT maintains that there is a qualitatively heterogeneous motivational propensity between individuals. SDT differentiates motivation by types (Deci & Ryan, 2008) reflected in the notion of causality orientations. These represent general organising processes for people's experience and behaviour in a variety of domains, including awareness of needs and emotions, self-related cognitions and affects, and the types and qualities of behaviours people engage in (Amabile et al., 1994; Deci & Ryan, 1985a).

Causality orientations can therefore also be thought of as an individual's action system against which environmental information is consciously processed. In short, causality orientations refer to the predominant way/s a person interprets the events that initiate his/her own behaviour (Deponte, 2004). Three causality orientations have been identified (Wong, 2000). The autonomy orientation "involves a high degree of experienced choice with respect to the initiation and regulation of one's own behaviour" (Deci & Ryan, 1985b: 111). The control orientation "involves people's behaviour being organised with respect to controls either in the environment or inside themselves" (*ibid*., 112). The impersonal orientation "involves people's experiencing their behaviour as being beyond their intentional control" (*ibid.*, 112). Individuals interpret events according to all three orientations, although the strength of each orientation may differ (Wong, 2000).

Of particular interest is the autonomy orientation. Extant empirical work evinces that a strong autonomy orientation shares with autonomous reflexivity a predictive proclivity of well-being in the workplace. For instance, Wall et al. (2013) found autonomy perceptions to be related to increase perceptions of self-efficacy. In terms of hope,Wandeler and Bundick (2011) provided evidence confirming positive relationships between hope and the three basic needs variables – relatedness, autonomy and competency with hope being most closely linked to competency. In a similar fashion but employing the causality orientation measures rather than the basic needs, Sun et al. (2011) showed that autonomy orientation was positively related to hope, whereas both controlled and impersonal orientations displayed negative relationships. Optimism has also received attention as a potential resource associated with autonomy orientation, for example Gagné et al. (2010) reported that autonomous motivation was related to optimism as well as autonomy orientation.

However, the main problem of SDT in regards to a reflexive account of human functioning lies in the insistence of its protagonists in all needs innate. Instead, a critical realist understanding of coping suggests that needs are emergent, they probably arise from

the complex interaction of mechanisms and structures. The need for competence is lodged in an external environment that is optimally divergent from the current level of understanding or skill (Pyszczynski et al., 2000) of the individual involuntarily placed. Gillberg and Bergman (2015) have referred to such a context as being resource strong. Indeed, such an environment can be said to lead to the experience of contextual discontinuity where survival is incumbent on effective adaptive responses, constituting in the first place on being aware and in the second on satisfying the need for competence. The need for competence means aspiration to be effective, to cope with problems of an optimal level of difficulty as a reaction to environmental challenges (Zarakovsky, 2014).

Thus, to develop an autonomous reflexivity may be paralleled to being cognisant of such environmental demands and to respond effectively, this means accessing intraindividual coping resources. In this context, an autonomous reflexivity intervention therefore entails reaching out to the deepest recesses of the human spirit wherein the inner human strengths lie. It can be likened an SOS call to the self, at the other end of the line the call is met by psychological resilience. Resilience is a psychological defence mechanism, it comes to the rescue of the organic self but the task at hand requires a joint effort. Self-confidence, hope and optimism are probably summoned as the organism's refusal to wilt under environmental exigencies is fed back to the self through an upward spiral of positive emotion. Successful coping in turn fuels the pursuit of further challenges, but because satisfactory fulfilment of the competence need was achieved alone, lone pursuits are preferred with it the need for autonomy.

Archer (2007) describes the tendency of the young autonomous reflexives to pursue practical activities that require little social interaction. They do so, it is suggested here, in the pursuit of psychological independence indexed in the need for autonomy. These psychological resources and needs are enduring, they persist into adulthood. The need for autonomy of the autonomous reflexives is accentuated in no uncertain terms by Archer (2007: 292), "Above all there is a desire for autonomy at work that parallels their autonomous mental activities and corresponds to the autonomous exercise of their practical concerns." Therefore, in the context of SDT it may be argued that autonomous reflexivity reflects a dual need for competence and autonomy fulfilment in the practical domain which particularly plays out in the work context. However, the need for relatedness, described as the need to experience belongingness or the sense of community (Osterman, 2000), is less likely to manifest as a result of an autonomous reflexivity

intervention. Perhaps it is more fitting to speak of the need for relatedness in relation to communicative reflexivity.

Because of the closely knit communities which characterise their natal context, the communicatives are not exposed to situations where they have to cope by themselves. They rely on trusted others to complete their cognitive appraisal of environmental experiences. This means that such appraisal are projected towards and depend upon others to enable successful performance (Mutch, 2004). According to Archer, the practice of communicative reflexivity entails privileging "the public over the private, shared experience over lone experiences, third person knowledge over first-person knowledge" (2007a: 273). It is from this dependence on others to complete their 'thought and talk' that the need for relatedness probably emerges in the case of communicative reflexivity.

Dependence on others also means that there is less incentive for the need for competence and autonomy respectively to manifest to the same extent as in the case of autonomous reflexivity within the practical domain. This is probably why relationships are central to the communicatives, they draw their strengths from others, and in other words, they will tend to be intrinsically motivated in circumstances that carry relational goods. Thus, in the workplace, it may be the case that the communicative reflexives' performance will probably be motivated by availability of support for the need for relatedness, but on the whole, it is expected that they will probably feel more controlled than motivated particularly against a backdrop of today's dynamic work settings. Taking all the analyses together, this section has unearthed psychological needs for autonomy and competence as potential further psychological mechanisms within an overall autonomous reflexivity action system. Therefore, in combination, SDT and positive psychology seem to offer a dense theoretical scaffold from which discussions of the main findings can be pursued further. This theoretical scaffold is put to work in providing an overall discussion of the findings in the section that follows.

6.7 Overall Discussion and Synthesis

Archer explains the tendency of the autonomous reflexives to be task oriented as a consequence of them experiencing 'aloneness' in their early years. According to her, this prompts the young autonomous subjects to engage in practical activities requiring limited social interaction and in the process mastery of practical skills is achieved which eventually become an integral part of their self-expression. Archer's explanation is somewhat sketchy; mastery of any practical skills requires tenacity particularly for a

young child. While it may well be the case that the young autonomous reflexives would develop an affinity for the practical domain and indeed performative achievements, this thesis argues that this is probably because of their emergent need for competence. As discussed before, the need for competence is imbued in the contextual discontinuity experienced by the young subjects. Autonomous reflexivity can be likened to a process of cognitive appraisal such that the need for competence is recognised and satisfied in order to maintain homeostasis of the organic self. In the absence of relational support, responding to this need involves the summoning of inner resources. The findings indeed have established positive relationships between positive psychological resources and autonomous reflexivity.

Resilience is probably the first to respond to a need to cope prompting the emergence of self-confidence, hope, and optimism. Therefore, pushing the envelope of the findings, it may be inferred that the young autonomous reflexives are equipped with psychological resources whilst their need for competence in turn triggers the need for autonomy given that the former's satisfaction was a lone accomplishment. At this young age, practical activities potentially offer a sanctuary for the fulfilment of autonomy as well as competence. They are also equipped with the psychological armouries to persist whilst performative achievements are relayed back to the self-system as positive emotion. According to Chafouleas and Bray (2004), positive emotion leads to exploration, and exploration leads to mastery. This then leads to even greater positive emotion, discovery, and mastery. Positive emotion thus sustains the pursuit of further lone activities.

It can be argued that through repeated doses of positive emotions, performative achievements are internalised as part of the intrinsic motivation system of the autonomous reflexives. Performative achievements are translated into a preoccupation with work in adulthood and because psychological resources and emergent needs once stabilised are enduring, the autonomous reflexives invest their time at work to master their job and to be proficient at it independently. It is therefore little wonder that the hypothesis suggesting that autonomous reflexivity would be related to 'valuing work' or 'career' (H_{10}) received the strongest support ($\beta = .370$, $p < .01$). Indeed, a fitting testament to Archer's unrelenting conviction that work trumps all the other concerns of autonomous reflexivity. While being good at their job satisfies their need for competence, the perception of control of their work environment fulfils their need for autonomy. Needs satisfaction conduces to job satisfaction and the feeling of positive emotions which serve as further nutrients to their psychological resources by way of an upward spiral of

positivity (Luthans et al., 2011). Advocates of positive psychology discuss the relationship between positive emotion, wellbeing and work performance. For example, Avey et al. (2008) found that employees who were higher in PsyCap were likely to have more positive emotions and subsequently be more engaged and less cynical, and also exhibited more organisational citizenship and less deviant behaviours.

According to Archer (2007a), the autonomous reflexive's propensity to get on in life tends to activate the constraints and enablements of the social structure. Circumventing constraints requires creativity; therefore it is from this drive to overcome structural barriers in pursuit of their 'projects' that the need for innovativeness appears to take root in Archer's autonomous subjects. Whilst goal pursuit may well be motivational it says nothing about the cognitive broadening (Fredrickson, 2002; Harmon‐Jones et al., 2012) process believed to be associated with creative and indeed innovative thinking. Based on the relationship established between PsyCap and AR in this thesis, it may well be possible that positive psychological resources and positive emotions operate in tandem in the intervening space between autonomous reflexivity and action. According to the broaden and-build theory, positive emotions broaden the scopes of attention, widening the array of perceptions, thoughts, and actions presently in mind (Fredrickson & Branigan, 2005; Tugade et al., 2004). More precisely, Isen (2001) has argued that positive affect enhances problem solving and decision making, leading to cognitive processing that is flexible, innovative, creative, thorough and efficient. Furthermore, induced positive emotions increase one's preferences for variety and broaden one's arrays of acceptable behavioural options (Tugade et al., 2004).

Support for these assertions is emerging in the organisational behaviour literature. For instance, in a recent study involving a large sample of working adults in the US, Luthans et al. (2011) showed that the broadened thought-action repertoires and expanded inventory of psychological resources due to positivity can be particularly relevant for problem-solving performance and potentially enhanced innovation. Therefore, the creative propensity of autonomous reflexivity may be explained by the presence of these positive resources. While the foregoing argument provides a potentially more nuanced understanding of the innovative proclivity of autonomous reflexivity it also serves to augment understanding on the role of autonomous reflexivity in the development of positivity. It is somewhat surprising that in spite of the significance of positive emotions to workplace behaviour and wellbeing, studies that investigate its antecedents are few and

far in between. Thus, like PsyCap, 'the left side' of positive emotions has been left largely untouched. Nevertheless, a few studies have focussed on contextual factors, for example, Xanthopoulou et al. (2012) found that more autonomy, quality coaching, and psychological climate of cooperation and warmth predicted positive emotions in employees. Moreover, positive emotions were found to be related to higher levels of self-efficacy, self-esteem and optimism. However, these findings neglect the fact that positivity might have been established a priori in different domains making it difficult to interpret the predictive power of the contextual factors with any degree of confidence.

In the context of the broaden-and-build theory, psychological resilience is discussed as potentially crucial to positive emotion. However, positive emotions are not taken to be merely by-products of psychological resilience, instead the two appears to exist in a reciprocal and mutually reinforcing relationship. Accordingly, Fredrickson and Joiner (2002) reported that positive emotions predicted improvements in broad-minded coping, which in turn predicted increases in subsequent experiences of positive emotions. And again, new experiences of positive emotions were related to increases in broad-minded coping, and so forth. In spite of these revelations the question remains as to the generative mechanism of positivity. Archer (2000) makes an allowance for emotion in her theory of internal conversation. According to her, emotion arises from the three different orders that humans are engaged with, "our physical well-being in the natural order, our performative achievements in the practical order and our self-worth in the social order" (Archer, 2000: 9). Therefore, emotions can be said to represent commentaries upon our concerns within those different orders. According to Archer (2006), because the commentaries will not be unanimous, the inner conversation's role is to evaluate them, promoting some and subordinating others, such that the combination of concerns we affirm are also those with which we feel we can live.

The unique ordering of emotional commentaries is the essence of our distinctive personal identity. Viewed as such, emotions are therefore of central importance in determining the condition of reflexive intentionality with which we approach our encounters with the sociomaterial (Thompson, 2009). However, as Burkitt quite rightly observes, "emotions are a commentary on our concerns, but this says little about the process through which these have become concerns in the first place" (Burkitt, 2012: 463). That is not the end of it, the idea that people are variously exposed to different objective circumstances, some more dire than others, also suggests varying demands for emotional regulation. For instance, the demand would be higher on individuals that experience contextual

discontinuity than those who experience contextual continuity. Thus, as presented before, particularly in relation to autonomous reflexivity, the role of internal conversation is not just in the orchestration of emotional commentaries, the findings suggest that autonomous reflexivity may be considered as perhaps one of the most significant feature of an emotion regulation system. Therefore, based on its association with resilience, autonomous reflexivity may be viewed as an important predictor of positive emotion. In sum, based on the positive relationships established in this work between autonomous reflexivity and psychological resources, it may well be the case that autonomous reflexivity triggers volitional coping, success of which prompts positive affect setting in motion the propitious condition for the broaden-and-build process. Therefore, the findings in this thesis suggest that autonomous reflexivity performs key generative functions for positivity.

The supportive role of context in the autonomous reflexivity action system is evidenced by the findings supporting the hypothesis that COCD is positively related to PsyCap (H_{12}). This is consistent with previous studies that have established a positive relationship between PsyCap and a supportive climate (e.g., Luthans et al., 2008c). However, previous studies have almost exclusively focussed on relationship-based support to the neglect of perhaps some of the more subtle aspects of organisational life that help to maintain and even perhaps contribute to wellbeing. COCD has been shown to have strong predictive powers for individual level organisational outcomes. While COCD and AR appear to share in a mutually supportive relationship, a post hoc analysis revealed that their predictive powers operate independently of each other's. When COCD acted as the mediator, the indirect relationship between AR and outcomes were significant, however, inspection of the strength of the path coefficients shows that there were no changes in strength. On the other hand, when AR performed the mediating role, the indirect effects of COCD were all insignificant.

These findings are interesting because they tend to suggest that while congruency exists between the powers of COCD and AR, their influences on outcomes are exercised independently of each other. Furthermore, in relation to change attitude, the findings reveal personal attributes, that is, reflexivity and PsyCap as the most important predictors, nevertheless the indirect effect of COCD through PsyCap reinforces the importance of context albeit in a less direct manner. The moderating effect of COCD on the modes of reflexivity was also examined. In a moderating capacity, the findings suggest that COCD interacted to dampen the negative effect of FR on PsyCap, a strengthened PsyCap

contributed to a more autonomous type of internal conversation even when the natural tendency appeared to be fractured. This is also an intriguing revelation in the sense that it begins to unpack the complex dynamics between the experience of the organisational context and reflexivity. It may well be the case that an occupational biography characterised by extended periods of exposure to a COCD is advantageous to transforming modes of reflexivity.

Previous studies have indicated that modes of reflexivity remain flexible to change and may respond to contextual conditions, for example as discussed by Delbridge and Edwards (2013) in their study of super yacht designers. The main point to take away from these findings nevertheless remains the fact that perception of COCD supports positivity in the workplace. In other words, a COCD may be viewed as resource-strong (Gillberg & Bergman, 2015) rather than resource weak. It supports positivity by creating an attractive and enabling environment for an autonomous reflexivity intervention. With such an intervention comes a battery of psychological mechanisms, indexed in positive PsyCap alongside the needs for competence and autonomy respectively. Together, the findings of this work provide initial evidence to suggest that an autonomous reflexivity intervention within a COCD constitutes a safe haven for positive individual level organisational outcomes to manifest. Thus, the findings in this work can be seen as the building blocks for a morphogenetic understanding of the organisational as well as individual level characteristics that conduce to positive organisational behaviour.

6.8 Chapter Summary

This chapter unites the findings of the realist review with the output from the various structural equation models. Set against a dense theoretical framework, the two sets of findings unite to illuminate the research questions and the research aims iterated at the start of this thesis. Together, the findings mutually support the overall hypothesis that an autonomous reflexivity intervention works through psychological capital to produce positive individual level organisational behavioural tendencies when the organisational climate leads to experience of contextual discontinuity. The partial mediation effect of PsyCap on AR left some unanswered questions prompting the further probing of potential psychological mechanisms of autonomous reflexivity. Combining SDT with a critical realist understanding of psychological coping helped to bridge a theoretical bridge between autonomous reflexivity and the needs for competence and autonomy respectively. In general, the findings offer a comprehensive outlook on the psychosocial functioning

of the individual from the vantage point of autonomous reflexivity. Thus, a variety of interesting theoretical and practical implications emanate from this study. The next chapter takes a closer look at those contributions.

Chapter Seven: Contribution and Implication to Theory and Practice

7.1 Introduction

This thesis set out to investigate the psychological mechanisms through which an autonomous reflexivity intervention operates, the likely workplace behavioural outcomes, and the nature of a favourable work context that supports this type of intervention. As explained in the previous chapter, this task was accomplished by applying a realist review to relevant primary studies that focus on autonomous reflexivity followed by a survey-based, quantitative methodology. A critical step in the research process was the validation of the internal conversation index (ICONI). According to Archer (private conversation), this had not been attempted before beyond the exploratory factor analysis, details of which are supplied in Archer (2007a). Therefore, as much as this work helps to unpack the modalities of how an autonomous reflexivity intervention works, it potentially offers some methodological commentaries, particularly in terms of the psychometric properties of the different facets of the ICONI. Further still, a morphogenetic understanding of organisational behaviour pursued in this research also means that the findings potentially add to the literatures concerned with individual behavioural tendencies in the workplace. A pertinent scholarship in this context is the field of positive organisational behaviour (POB) which has an interest in the individual and organisational characteristics that potentially account for positive organisational behaviours and attitudes.

7.2 Contributions to the Internal Conversation Literature

An increasing number of scholars (e.g., Caetano, 2015; Donati, 2011; Wiley, 2005) are adding their voices in recognising the centrality of Archer's work to the advancement of knowledge in the field of social theory. Notwithstanding, there are a vocal few (e.g., Burkitt, 2012; Dyke et al., 2012) who have expressed legitimate concerns of a theoretical as well as methodological nature in relation to her approaches. Recognising these concerns, this thesis has sought to address some of these deficiencies, first by subjecting the ICONI to statistical scrutiny and secondly by seeking to unlock the *black box* of situated individual actions associated with autonomous reflexivity. The methodological and theoretical contributions emanating from these endeavours are discussed separately in the subsections below.

7.2.1 Methodological Contribution

Archer's work on internal conversation continues to inspire budding researchers and is gaining momentum in different academic spheres. While some scholars (e.g., Dyke et al., 2012; Lopez, 2009) have directed methodological queries at Archer's approach, many others have recognised the field of possibles (Caetano, 2015) and have preferred to use Archer's work on reflexivity as a template to study the interplay between structure and agency. In the case of the latter, there is potentially a need to reflect on the extent to which conclusions drawn from these studies could be misleading bearing in mind that some of the instruments used by Archer do not appear to possess the psychometric properties required to be used in the way they have been in her research. This is particularly important as the list of studies that seeks to build on or extend Archer's research on the four modes of reflexivity continues to grow.

The findings in this work, which is based on a more heterogeneous sample of UK working adults, therefore, contribute to further understanding on the measurement structure of the four modes of reflexivity. While the statements that are aimed at measuring fractured and meta-reflexivity appear to satisfactorily meet the psychometric conditions required for a reflective first order construct, more needs to be done, by way of designing and testing of appropriate items, to ensure the internal reliability of communicative reflexivity. More specifically, the results of the statistical tests suggest that autonomous reflexivity more closely performs as a formative rather than a reflective type of construct using the current set of statements as indicators, and thus should be best validated as the former. While these findings are variously affected by limitation of representativeness of sample, compared to Archer's sample, the one used in this study enjoys greater diversity and heterogeneity.

7.2.2 Theoretical Contribution to the Internal Conversation Literature

The findings in this work have the potential to contribute to knowledge on the nature of the organisational attitudes and behaviours that are likely to be associated with the practice of autonomous reflexivity. In spite of its relatively recent nature, Archer's work on internal conversation is slowly gaining traction in the arena of management and organisational studies. While de Vaujany (2008) generally views Archer's work as extremely theoretical with little application to organisational setting and practices, some scholars have successfully applied Archer's work on internal conversation to unpack the heterogeneity in individual level behaviour in the workplace. Indeed, although the

empirical literature on internal conversation is still thin on the ground, previous work suggests that autonomous reflexivity is a useful predictor of innovativeness and creativity in the workplace. While Archer has pronounced on the tendency of autonomous reflexivity to value work and performative achievements, there have been very few attempts to systematically investigate the predictive power of autonomous reflexivity in relation to job attitudes and behaviours more broadly. This however could be attributed to the lack of a validated and published ICONI. Nevertheless, the findings of this study begin to shine a light on the nomological network of autonomous reflexivity, in doing so exposing its predictive power in relation to workplace performance and job attitudes and behaviours. While the list of consequences is not exhaustive, the findings of this work seem to lend support to autonomous reflexivity as a useful predictor of positive individual level organisational outcomes.

The findings in this work also have the potential to contribute to the theoretical understanding of the psychological processes associated with the practice of autonomous reflexivity. Because of her commitment to internal conversation as the mediator of the impact of structure on agency, Archer tends to neglect the psychological resources that are at play in agentic interventions. She equips autonomous reflexivity with self-confidence as the pre-eminent psychological resource essential in this lone mediatory endeavour. Nevertheless, she recognises the need for self-confidence of an enduring nature if fracturing is to be avoided. The findings in this research help to further unpack the nature of the psychological resources that are at play during an autonomous reflexivity intervention. Thus, the findings in this thesis start to illuminate the psychological micro-foundations of autonomous reflexivity, in particular they begin to answer to authors such as Mutch (2010a) and Delbridge and Edwards (2013) who have called for research into reflexivity that takes into account the interplay between sociology and psychology.

A further contribution of this work is in revealing the dynamics of interaction between the work context and autonomous reflexivity. Archer emphasises the role of the early natal environment in the shaping of internal conversation. In adulthood, she alludes to the types of jobs that would most likely suit the individualistic nature of autonomous reflexivity, but, she does not contextualise these within an organisational space. This work has tried to unpack the nature of the organisational climate that would be compatible with the values of autonomous reflexivity, this was validated as a second order construct and labelled climate of contextual discontinuity (COCD). Furthermore, the findings begin to explain the dynamics of the interaction between autonomous reflexivity and the

organisational context. Thus, this research helps to further understanding on the type of organisational context that would favour the development of autonomous reflexivity and the process through which this can happen. The findings in this study can also be seen as providing some empirical evidence to support Dyke et al.'s (2012) suggestion that modes of reflexivity should not be seen as fixed traits of the individual but rather as an approach that people can adopt in different situations and context. In sum, the key theoretical contribution from these findings lies in establishing the congruency between AR and COCD, particularly accentuating that AR and COCD seem to share the same organisational space. Put differently, the findings seem to have started to unpack the reciprocal nature of the relationship between AR and COCD.

7.3 Contribution to PsyCap Theory

The findings in this research also contribute to the theory of psychological capital (PsyCap). PsyCap is a key concept in the positive organisational behaviour (POB) scholarship. However, the PsyCap literature has been slow to recognise the potency of individual differences in explaining the heterogeneity in PsyCap between individuals. Until most recently, research work has focussed almost exclusively on contextually based antecedents of PsyCap. This has resulted in a myopic view of PsyCap development. A limited understanding of the developmental correlates of PsyCap means that efforts to improve overall level of employees' PsyCap are less well informed. Generally, the literature discusses short term interventions aimed at improving the cognitive faculties of individual PsyCap resources (Luthans et al., 2006a; Luthans et al., 2008b).

While short term improvement in overall level of PsyCap has been observed from these interventions, the outstanding issue deserving of attention remains the long term development and maintenance of PsyCap. The findings in this research are allied more closely to recent developments in PsyCap research. More specifically, the findings speak to the multi-established (Avey, 2014) nature of PsyCap. This suggests that individual differences in dominant modes of reflexivity practiced a priori may well be amongst the distinguishing factors accounting for PsyCap heterogeneity between individuals in the workplace. Therefore, the finding suggesting autonomous reflexivity as a predictor of PsyCap in the workplace not only exposes the role of metacognitive processes in the development of PsyCap but also speaks to the role of the early social environments in shaping the resources available to individuals.

7.4 Implication for Practice

The practical implication of the findings advocates that through human resources management (HRM) practices, organisations can exercise control on the overall level of PsyCap, by first selecting and hiring employees for high PsyCap based on individual differences in dominant mode of reflexivity. However, the longevity and maintenance of PsyCap requires that organisations ensure the right structures are in place. Previous research has looked for supportive contextual conditions in leadership styles, such as transformational (Bass et al., 2003; Gooty et al., 2009), or authentic (Jensen & Luthans, 2006; Rego et al., 2012), but, the findings in this thesis advocate cultivating a climate of contextual discontinuity (COCD).

Organisations that actively create a COCD are best placed to reap the benefits of an autonomous reflexivity intervention and with it all the psychological benefits associated with positivity, including PsyCap, positive emotions, and possibly intrinsic motivation towards work. The potential benefits of autonomous reflexivity to the organisation when the climate is right are many, in this research these are indexed in superior task performance, innovative behaviour, job satisfaction and a positive attitude towards organisational change. Therefore, by incorporating sociological considerations of the relationality of structure and agency (Syed & Özbilgin, 2009) within the PsyCap literature, this work has endeavoured to present a realistic, contextual and interdisciplinary perspective on positive organisational behaviour.

On a more strategic level, particular attention could potentially be paid to dominant reflexive modes during the recruitment of managers for key creative posts, whereas managerial training could focus on developing a more autonomous type of reflexivity in managers at all levels. Managers that are more predisposed to communicative reflexivity should perhaps be assigned to less creative job portfolios. Nevertheless, in the spirit of the diversity, it may well be useful that companies consider the composition of their top management team (TMT) in light of encouraging a mixed-bag of reflexive interventions during TMT discussions.

7.5 Chapter Summary

In this chapter the potential contributions of this study have been discussed and those include methodological as well as theoretical as regards the autonomous reflexivity and modes of reflexivity more generally. The managerial implications have been extracted on

the basis that autonomous reflexivity may be viewed as an important antecedent for positive organisational behaviour and attitudes. The psychometric properties of the different facets of the ICONI have also been exposed suggesting that further work may be required in designing and testing items that capture the essence of some of these modes in a more substantive and relevant manner.

Chapter Eight: Conclusion

8.1 Introduction

This thesis set out to start unlocking the nature of the measurement models of the ICONI latent constructs as well as to illuminate the black box of situated organisational action associated with the practice of autonomous reflexivity. More precisely, it sought to answer the following research questions:

1. What is the nature of the underlying measurement model for the latent construct for each of the four modes of reflexivity?

2. What impact does the interaction between autonomous reflexivity and the organisational context have on individual level organisational behaviour and attitude?

In pursuing the research questions, the work conducted aimed at investigating:

a) The psychometric properties of the latent construct of each of the four modes of reflexivity
b) The psychological/cognitive competences associated with autonomous reflexivity.
c) The characteristics of an organisational context compatible with the practice of autonomous reflexivity
d) The workplace behavioural and attitudinal outcomes likely to result from the practice of autonomous reflexivity.

Primary data collection for the study was effected through an online survey using a questionnaire as the instrument. The 340 valid responses retained from the survey panel represented a diverse socio-demographic coverage of working adults in the UK. Statistical analysis of the data proceeded in two stages, validation of measurement models and testing of hypothesised relationships. As regards the psychometric properties of the ICONI, the statistical tests conducted revealed the reflective nature of the fractured, communicative and meta-reflexivity measurement models respectively. While both fractured and meta-reflexivity constructs showed acceptable psychometric properties, communicative reflexivity construct was found to be internally unreliable. The measurement structure of autonomous reflexivity was revealed as formative.

The challenges posed by the second research question and its interrelated aims necessitated a novel approach to carrying out the research. Drawing on the resources of critical realism, namely the realist review and the morphogenetic approach, a theoretical framework was developed to guide the research process. Autonomous reflexivity features at the centre of this framework as an agentic intervention. This framework was used as a guide for the literature review in the first instance. The literature review was conducted as a systematic, evidence-based review commensurable with the realist review approach. Guided by the theoretical framework, thematic analysis of primary studies retained for the review furnished evidence enabling the formulation of hypotheses regarding the organisational context, mechanisms and outcomes associated with an autonomous reflexivity intervention. Hypothesised relationships were tested employing SEM techniques with the data fitted by ML, while Bollen Bootstrapping method was employed to correct for multivariate non-normality. The results from the various structural models tested were largely supportive of the hypothesised relationships. The findings of this work help to unpack the working dynamics of autonomous reflexivity. Furthermore, they also illuminate the predictive power of autonomous reflexivity in relation to performance, job behaviours and attitudes, the mechanisms through which this power is delivered and the dynamics of its interaction with a particular organisational setting.

Adopting critical realism as an ontological basis in conducting management research should however not be treated as lip service. When due consideration is given to the ontological purchase of critical realism research can break the monotonous mould that seems commonplace in management and organisational studies, potentially leading to more insightful if not relevant findings. Critical realism provided the ontological basis for unpacking the complex relationships between individuals, their organisational context, and behavioural tendencies in this thesis. While it makes for an innovative approach to theory building and testing, the application of critical realism principles to research is not without costs. The strengths and weaknesses of the research design are discussed next. Some proposals for improvement are offered in the section on future research. An overall reflective summary concludes this thesis.

8.2 Research Strengths

Hodgkinson and Starkey (2011: 363) seem somewhat troubled by what they see as the skewed emphasis on rigour at the expense of relevance in management research complaining that, “too much management research is context-free.” They are of the

opinion that critical realism offers a way out of this impasse. For them, critical realism is considered as one of the most promising ways forward for business schools and for management research, because it provides a possible ontological basis for management research that completes the circle between theory and relevance. This research goes some way in responding to Hodgkinson and Starkey's (2011) call for a more balanced agenda without unduly compromising rigour for relevance. Indeed, among the strengths of this study's design is the unique contribution of drawing on critical realism in an innovative manner to derive and test a new conceptual model that relates reflexivity with positive psychological resources and positive organisational outcomes within a specific organisational context. To achieve this, one of the research questions was designed in the spirit of "what works, for whom, how, and in what circumstances" (Pawson et al., 2004: 3).

The evidence-based, theory driven review helps to bring evidence to the fore systematically in a robust, pluralist and flexible approach while accommodating both qualitative and quantitative research (Pawson et al., 2005). Playing to its strengths as an evidence-based, theory building tool, the realist review was used innovatively to provide empirical scaffolds, both qualitative and quantitative, to the hypotheses proposed. This ensured that the research benefitted from a dense conceptual architecture. The use of a survey-based questionnaire with a relatively heterogeneous sample has also provided for greater generalizability than smaller more homogeneous samples (Luthans et al., 2011) employed in previous studies that have conducted empirical enquiry into internal conversation.

The elaborated method to test for the presence of common method bias ensured that common method variance was adequately identified and addressed, thus improving the confidence that relationships observed were due to variables included in the study and not to spurious associations. The use of SEM techniques with ML and bootstrapping method corrected for multivariate non-normality whilst providing a more robust test for mediating effects, as compared to the conventional causal two-steps approach recommended by Baron and Kenny (1986). Thus, the robust approach to theory building and testing adds an additional credibility element to the contribution of the study variables. Furthermore, although the validity of the ICONI has raised a few suspicions, no previous studies had interrogated its measurement structure. This work is the first to offer a glimpse in the psychometric properties of the four reflexive modes, it is thus unique in this sense too. While utmost care is exercised to avoid the common pitfalls of conducting research in

general, no empirical investigation of social phenomena can account for all possible causes for observed social events. After all, the social world remains an open system, thus, knowledge claims remain incomplete if not potentially fallible. Nevertheless, confidence in the causal explanations offered in this thesis is strengthened when future research addresses some of the limitations highlighted in the next section.

8.3 Limitations

While steps are taken to uphold the mantra of rigour, all research inevitably confronts limitations. Realist review is time consuming and often also resource intensive in terms of costs. Seasoned realist reviewers work in teams for the best possible outcomes, nevertheless, quality assurance remains subjective and a matter of who is undertaking the review. An added layer of complexity abounds when attempts are made to customise the review to suit a particular research agenda as was the case in this research. Furthermore, relying on secondary data from primary studies means interpreting a third party's findings of a research work driven by a different agenda.

However, while the review was undertaken as a lone enterprise, the findings were in fact discussed with Archer herself. She was pleasantly surprised that the findings were 'consistent' with her own theorising. In addition, the use of existing primary studies allowed access to a more diverse pool of respondents than would have been possible with primary qualitative data collection. Furthermore, the review was used more as a theory building tool, thus, confirmation of the review findings through the use of primary quantitative data analysis served to strengthen confidence in the quality of the review. Reciprocal relationships are normally examined with longitudinal data. Cross–sectional data were used in this study to analyse the hypothesised reciprocal relationships between context and reflexivity. While the findings speak to a relationship of reciprocity these must be interpreted with caution given the cross-sectional nature of the data.

8.4 Future Research

Although the formative measure of autonomous reflexivity has shown acceptable validity parameters, it is recommended that future studies replicate the steps taken in this work in order to further evidence the validity of the formative index. The validity of the findings could have been further strengthened if a more reliable measure for communicative reflexivity was available. Future research should aim at developing more reliable items

for the latent communicative reflexivity construct that meet with the internal validity requirements for a latent construct.

Once these are satisfactorily addressed, some of the shortcomings highlighted above could be tackled with future research-design of the mixed methods type for example. Archer's biographical method could be employed in conjunction with a validated ICONI to collect primary data for the qualitative phase. This phase should aim at capturing the psychological resources and organisational performance related to the different reflexive modes. Collection of data on organisational climate might be achieved through a mixture of observations, interviews and analysis of company documents. This could potentially offer a more objective way of understanding the organisational environment.

In terms of quantitative data, ideally, it is preferable if changes in dominant reflexivity mode could be captured in relation to changes in the organisational climate. Perhaps this might be achieved in an organisation that has undergone radical changes, say from a more hierarchical to a more flexible structure. This would also present an opportunity to investigate firm level phenomena. It has been suggested that organisations that promote a climate of contextual discontinuity are more likely to attract autonomous reflexivity. The tendencies associated with the practice of autonomous reflexivity can be argued to mirror those that describe entrepreneurial managerial practices in the context of dynamic capabilities. Under the auspices of dynamic capabilities, future studies might be designed with a view of investigating the strategic implications of managerial reflexivity particularly under conditions of competitive dynamism.

8.5 A Reflective Summary

Advances in digital communication technological innovation are showing no signs of slowing down. In fact, during the lifetime of this PhD journey, if anything, new technological inventions have taken on a semblance of regularity. The emergence of the tech-savvy consumers in the last couple of years has added to exacerbate the pace of technological innovations while companies battle it out for a share of crowd-surfed ideas. Perhaps a more worrying prospect concerns the equally fast-paced development in the realm of artificial intelligence and it has been suggested that automation poses a serious threat to white-collar jobs. Indeed, Lanchester (2015: 5) makes a pertinent point, "We are used to the thought that the kind of work done by assembly-line workers in a factory will be automated. We're less used to the thought that the kinds of work done by clerks, or

lawyers, or financial analysts, or journalists, or librarians, can be automated. The fact is that it can be, and will be, and in many cases already is."

There is no denying that the incessant nature of technological breakthroughs continues to pervade all areas of human lives. Firms have not been spared, they have for some time been grappling with intensified competition as a direct consequence of technological innovations. The ghost of the radical transformation of the book retailing sector by Amazon still looms large, firms ignore such dynamics at their own peril. The prospect of automation spreading its wings to what is traditionally the preserve of white-collar workers domain is unnerving to put it mildly. There is a renewed sense of uncertainty as the fragile economic recovery appears to have stalled; all in all, the modern day workplace is increasingly a stressful environment. This means that more and more the capacities of modernity cosmopolitans to cope with the pressures of the workplace are being put to the test. The cavalry is not on its way, modern day workers are expected to be resilient on the one hand in the face of workplace challenges, and on the other in maintaining their employability outside the company.

In spite of the myriad of technological advances, it can be argued that the fate of today's organisations is still inextricably linked with these flesh and blood cosmopolitans. Therefore, organisations have a vested interest in ensuring that their employees are adequately resourced for the day-to day challenges of their working-life. Indeed, this research has argued in favour of the unrelenting nature of the human spirit. In the face of adversities individuals have a staying power to thrive and indeed find their way through the world. This innately human strength is bestowed on all individuals by virtue of their consciousness and it is not just reserved for hardships. Organisations can harness this strength by being cognisant of the distinction between intelligence and artificial intelligence. Some might wish to call it a utopian dream, however, the findings in this work suggests that when humans are treated as such, recognised for their full embodied capacities, organisations will stand the test of time. This is because, in return the human resources will bestow upon organisations a well-honed survival instinct, hundreds if not thousands of years in the making, which comes naturally to them.

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Appendices

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Appendix (I) Methodological Appendix (MA)

Table 42: Test of Normality - ICONI

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Aut1	.172	340	.000	.927	340	.000
Aut2	.152	340	.000	.934	340	.000
Aut3	.145	340	.000	.932	340	.000
Fra1	.154	340	.000	.936	340	.000
Fra2	.160	340	.000	.929	340	.000
Fra3	.130	340	.000	.940	340	.000
Fra4	.167	340	.000	.919	340	.000
Com1	.164	340	.000	.908	340	.000
Com2	.142	340	.000	.923	340	.000
Com3	.170	340	.000	.935	340	.000
Met1	.162	340	.000	.942	340	.000
Met2	.136	340	.000	.950	340	.000
Met3	.124	340	.000	.950	340	.000

a. Lilliefors Significance Correction

Table 43: Test of Normality - PsyCap Constituents

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Con1	.209	340	.000	.899	340	.000
Con2	.226	340	.000	.871	340	.000
Con3	.172	340	.000	.914	340	.000
Con4	.209	340	.000	.872	340	.000
Con5	.249	340	.000	.840	340	.000
Con6	.233	340	.000	.856	340	.000
Hop1	.216	340	.000	.889	340	.000
Hop2	.156	340	.000	.932	340	.000
Hop3	.206	340	.000	.907	340	.000
Hop4	.169	340	.000	.921	340	.000
Hop5	.175	340	.000	.923	340	.000
Hop6	.219	340	.000	.889	340	.000
Res1	.169	340	.000	.925	340	.000
Res2	.237	340	.000	.883	340	.000
Res3	.188	340	.000	.923	340	.000
Res4	.203	340	.000	.899	340	.000
Res5	.236	340	.000	.888	340	.000
Opt1	.150	340	.000	.946	340	.000
Opt2	.150	340	.000	.946	340	.000
Opt3	.171	340	.000	.925	340	.000
Opt4	.178	340	.000	.921	340	.000
Opt5	.148	340	.000	.946	340	.000
Opt6	.151	340	.000	.941	340	.000

a. Lilliefors Significance Correction

Table 44: Test of Normality - Dependent Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	**df**	**Sig.**	**Statistic**	**df**	**Sig.**
Ino1	.170	340	.000	.933	340	.000
Ino2	.191	340	.000	.922	340	.000
Ino3	.205	340	.000	.899	340	.000
Ino4	.180	340	.000	.934	340	.000
Ino5	.189	340	.000	.924	340	.000
Ino6	.185	340	.000	.924	340	.000
Chg1	.153	340	.000	.930	340	.000
Chg2	.148	340	.000	.936	340	.000
Chg3	.150	340	.000	.935	340	.000
Chg4	.148	340	.000	.936	340	.000
Chg5	.129	340	.000	.944	340	.000
Perf1	.215	340	.000	.891	340	.000
Perf2	.249	340	.000	.871	340	.000
Perf3	.227	340	.000	.881	340	.000
Perf4	.218	340	.000	.877	340	.000
Perf5	.212	340	.000	.874	340	.000
JSat1	.162	340	.000	.930	340	.000
JSat2	.198	340	.000	.903	340	.000
JSat3	.199	340	.000	.890	340	.000
JSat4	.202	340	.000	.919	340	.000
JSat5	.219	340	.000	.916	340	.000
Career	.196	340	.000	.926	340	.000
Financial Success	.185	340	.000	.931	340	.000
Social Mobility	.273	340	.000	.794	340	.000

a. Lilliefors Significance Correction

Table 45: Test of Normality – Organisational Contextual Discontinuity

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
OFlex1	.152	340	.000	.939	340	.000
OFlex2	.144	340	.000	.942	340	.000
OFlex3	.153	340	.000	.938	340	.000
OFlex4	.143	340	.000	.939	340	.000
OFlex5	.147	340	.000	.946	340	.000
OFlex6	.135	340	.000	.939	340	.000
ORef1	.162	340	.000	.942	340	.000
ORef2	.177	340	.000	.926	340	.000
ORef3	.165	340	.000	.938	340	.000
ORef4	.165	340	.000	.937	340	.000
ORef5	.176	340	.000	.925	340	.000
OAut1	.187	340	.000	.929	340	.000
OAut2	.171	340	.000	.932	340	.000
OAut3	.128	340	.000	.949	340	.000
OAut4	.142	340	.000	.947	340	.000
OAut5	.164	340	.000	.940	340	.000
ORes1	.127	340	.000	.947	340	.000
ORes2	.131	340	.000	.948	340	.000
ORes3	.145	340	.000	.947	340	.000
ORes4	.156	340	.000	.940	340	.000
ORes5	.135	340	.000	.928	340	.000

a. Lilliefors Significance Correction

Table 46: Test of Normality – Demographics

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Education	.225	340	.000	.922	340	.000
Tenure_Post	.167	340	.000	.805	340	.000
Tenure_Org	.175	340	.000	.820	340	.000
Age	.071	340	.000	.978	340	.000

a. Lilliefors Significance Correction

Table 47: Residual Covariances – Organisational Contextual Discontinuity

	Org_ Res5	Org_Res 2	Org_Res 1	Org_Ref 5	Org_Ref 4	Org_Ref 3	Org_Ref 2	Org_Flex 6	Org_Flex 5	Org_Flex 4	Org_Flex 3	Org_Flex2
ORes5	.000											
ORes2	.000	.000										
ORes1	-.042	.006	.000									
ORef5	.012	.009	-.045	.000								
ORef4	.161	.068	.041	.043	.000							
ORef3	.196	.042	-.005	-.038	-.049	.000						
ORef2	-.001	-.013	-.048	.016	-.128	.150	.000					
OFlex6	.098	-.078	.005	-.003	.100	.023	.156	.000				
OFlex5	.118	-.059	.032	.047	.083	-.039	-.032	.043	.000			
OFlex4	.051	.025	-.023	-.091	.234	-.165	-.206	-.031	.000	.000		
OFlex3	.058	-.082	-.019	-.047	.112	-.020	-.071	-.043	-.029	.063	.000	
OFlex2	.144	.097	.051	-.139	.113	-.143	-.056	-.052	-.037	.000	.111	.000

Table 48: KMO and Bartlett's Tests - ICONI

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.857
Bartlett's Test of Sphericity	Approx. Chi-Square	1302.063
	df	78
	Sig.	.000

Table 49: Anti-Image Matrices - ICONI

	Aut1	Aut2	Aut3	Com1	Com2	Com3	Met1	Met2	Met3	Fra1	Fra2	Fra3	Fra4
Aut1	.788	-.039	-.027	-.049	.021	-.042	-.207	-.056	-.050	-.021	-.074	.060	-.010
Aut2	-.039	.596	-.008	.029	-.017	-.017	.086	-.025	.059	.115	.103	.135	-.014
Aut3	-.027	-.008	.560	.015	.068	-.037	.001	-.069	.081	-.001	.038	.034	.169
Com1	-.049	.029	.015	.842	-.120	-.123	-.054	-.053	.006	-.004	-.032	.033	-.047
Com2	.021	-.017	.068	-.120	.830	-.156	.076	.024	-.019	-.084	-.011	-.053	.000
Com3	-.042	-.017	-.037	-.123	-.156	.864	.071	.031	.020	-.060	-.006	-.100	.026
Met1	-.207	.086	.001	-.054	.076	.071	.621	-.079	-.169	.014	-.075	.005	.004
Met2	-.056	-.025	-.069	-.053	.024	.031	-.079	.805	-.130	-.065	-.011	-.041	-.057
Met3	-.050	.059	.081	.006	-.019	.020	-.169	-.130	.716	.032	.008	.001	-.035
Fra1	-.021	.115	-.001	-.004	-.084	-.060	.014	-.065	.032	.740	.052	-.081	-.089
Fra2	-.074	.103	.038	-.032	-.011	-.006	-.075	-.011	.008	.052	.408	-.091	-.136
Fra3	.060	.135	.034	.033	-.053	-.100	.005	-.041	.001	-.081	-.091	.445	-.099
Fra4	-.010	-.014	.169	-.047	.000	.026	.004	-.057	-.035	-.089	-.136	-.099	.344
Aut1	.766[a]	-.056	-.041	-.060	.026	-.051	-.296	-.070	-.066	-.028	-.131	.102	-.020
Aut2	-.056	.885[a]	-.013	.041	-.024	-.023	.142	-.036	.090	.172	.210	.262	-.031
Aut3	-.041	-.013	.872[a]	.022	.100	-.053	.001	-.102	.128	-.001	.080	.067	.385
Com1	-.060	.041	.022	.879[a]	-.144	-.145	-.075	-.065	.008	-.005	-.055	.053	-.087
Com2	.026	-.024	.100	-.144	.800[a]	-.184	.106	.030	-.025	-.107	-.019	-.087	.001
Com3	-.051	-.023	-.053	-.145	-.184	.664[a]	.097	.037	.025	-.075	-.009	-.161	.048
Met1	-.296	.142	.001	-.075	.106	.097	.814[a]	-.112	-.253	.021	-.148	.009	.009
Met2	-.070	-.036	-.102	-.065	.030	.037	-.112	.873[a]	-.172	-.084	-.019	-.069	-.109
Met3	-.066	.090	.128	.008	-.025	.025	-.253	-.172	.873[a]	.043	.014	.002	-.070
Fra1	-.028	.172	-.001	-.005	-.107	-.075	.021	-.084	.043	.877[a]	.094	-.141	-.177
Fra2	-.131	.210	.080	-.055	-.019	-.009	-.148	-.019	.014	.094	.878[a]	-.215	-.363
Fra3	.102	.262	.067	.053	-.087	-.161	.009	-.069	.002	-.141	-.215	.879[a]	-.252
Fra4	-.020	-.031	.385	-.087	.001	.048	.009	-.109	-.070	-.177	-.363	-.252	.844[a]

a. Measures of Sampling Adequacy(MSA)

Table 50: Method-U Model Factor Loadings: Dependent Variables

Item	Fear of Change	Innovative Behaviour	Job Satisfaction	Task Performance	Marker Variable
Chg1	0.672*				0.566*
Chg2	0.802*				0.505*
Chg3	0.791*				0.529*
Chg4	0.725*				0.548*
Inno1		0.737*			-0.196*
Inno2		0.782*			-0.205*
Inno3		0.710*			-0.201*
Inno4		0.724*			-0.155*
Inno5		0.793*			-0.229*
Inno6		0.827*			-0.272*
JSat2			0.643*		-0.190*
JSat3			0.716*		-0.275*
JSat5			0.792*		-0.145*
Perf2				0.813*	-0.234*
Perf3				0.861*	-0.246*
Perf4				0.876*	-0.195*
Perf5				0.808*	-0.281*
B1					0.815[a]
B2					0.744[a]
B3					0.849[a]

Table 51: Method-U Model Factor Loadings: COCD

Item	Flexibility	Hopefulness	Optimism	Marker Variable
OFlex2	0.873			-0.072
OFlex3	0.879			-0.029
OFlex4	0.873			-0.008
OFlex5	0.904			-0.103
OFlex6	0.846			-0.050
ORef2		0.829		-0.121*
ORef3		0.837		-0.059
ORef4		0.844		-0.046
ORef5		0.891		-0.101
ORes1			0.916	-0.077
ORes2			0.872	-0.124*
ORes5			0.713	-0.026

Table 52: Model AR-PC: Standardized Residual Covariances

	AR	Meta	FR	Gender	Age	Tenure_Org	Tenure_Post	Education	OPTI	HOPE	CONFI	RESI
AR	.000											
Meta	.164	.085										
FR	-.117	.345	.283									
Gender	-1.678	-1.604	-1.598	.000								
Age	-.185	-1.916	-1.577	.352	.497							
Tenure_Org	1.919	-2.341	-2.654	.054	.627	.295						
Tenure_Post	.561	-1.527	-2.285	.000	.792	.291	.000					
Education	-1.204	-.864	-.675	-.354	.963	1.580	2.365	.057				
OPTI	-.088	-.165	-.157	-.098	.331	1.141	.924	-.160	-.012			
HOPE	-.267	-.248	-.222	-.324	.318	1.389	.962	-.481	-.070	-.143		
CONFI	-.343	-.204	-.127	-.049	.384	1.382	1.022	-.536	-.117	-.189	-.182	
RESI	-.307	-.174	-.157	.108	.558	1.461	1.151	-.193	-.056	-.123	-.161	-.091

Table 53: Model AR-COCD Standardized Residual Covariances

	AR	COCD	Meta	FR	Gender	Age	Tenure_Org	Tenure_Post	Education	PsyCap	FOC	INOV	JOSAT	TPERF	Value Work
AR	.000														
COCD	.000	.000													
Meta	.000	.000	.000												
FR	.000	.000	.000	.000											
Gender	.000	.000	.000	.000	.000										
Age	.000	.000	.000	.000	.000	.000									
Tenure_Org	.000	.000	.000	.000	.000	.000	.000								
Tenure_Post	.000	.000	.000	.000	.000	.000	.000	.000							
Education	.000	.000	.000	.000	.000	.000	.000	.000	.000						
PsyCap	.000	.000	.000	.000	.000	.000	.000	.000	.000	.201					
FOC	.000	.000	.000	.000	.000	.000	.000	.000	.000	-.930	.000				
INOV	.000	.000	.000	.000	.000	.000	.000	.000	.000	.143	-1.148	.000			
JOSAT	.000	.000	.000	.000	.000	.000	.000	.000	.000	.130	.018	.187	.154		
TPERF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.158	-1.283	.000	.108	.000	
Value Work	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.202	-.456	1.569	.762	1.001	.000

Table 54: Model PC-MED Standardized Residual Covariances

	Tenure_Post	Meta	FR	Age	Spirituality	Education	AR	COCD	PsyCap	FOC	INOV	JOSAT	TPERF
Tenure_Post	.000												
Meta	.000	.000											
FR	.000	.000	.000										
Age	.000	.000	.000	.000									
Spirituality	.000	.000	.000	.000	.000								
Education	.000	.000	.000	.000	.000	.000							
AR	.766	.789	.420	-.169	-.104	.152	.000						
COCD	-.200	-2.016	-1.116	.044	.027	-.392	.000	.000					
PsyCap	-.140	.250	-.269	2.058	-.037	-1.274	-.125	.319	.127				
FOC	.008	.166	-.032	-.480	1.797	.489	.404	-.611	-.364	.051			
INOV	-1.566	-.044	-.507	-.995	1.360	1.952	-.054	.134	.130	-.379	.070		
JOSAT	.251	-1.427	-.989	1.566	.185	-1.471	-.047	.112	.152	.387	.265	.134	
TPERF	.673	-.979	.052	.485	.040	-1.598	-.072	.181	.112	.348	.425	.146	.066

Appendix (II) Figures

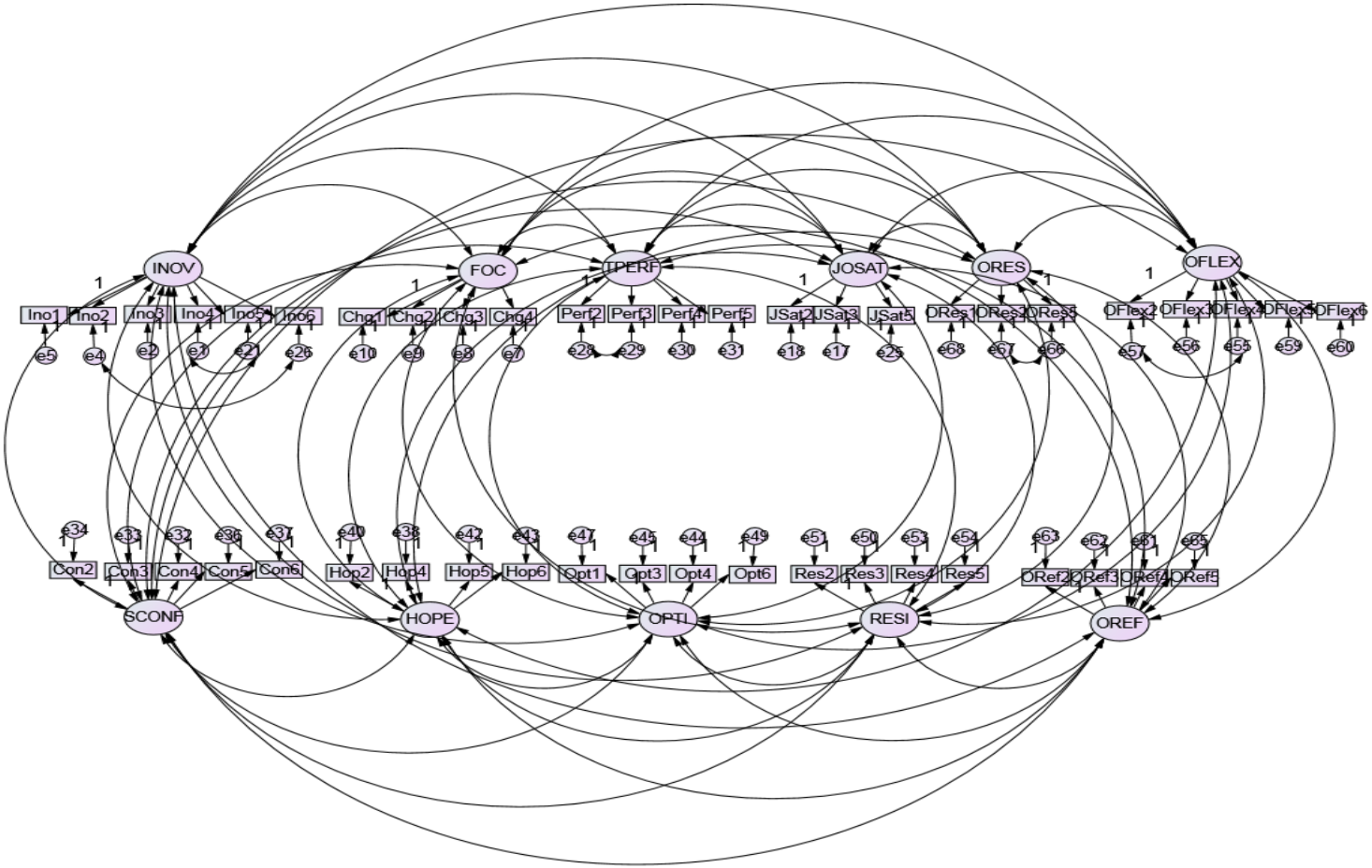

Figure 20: Meta Measurement Model

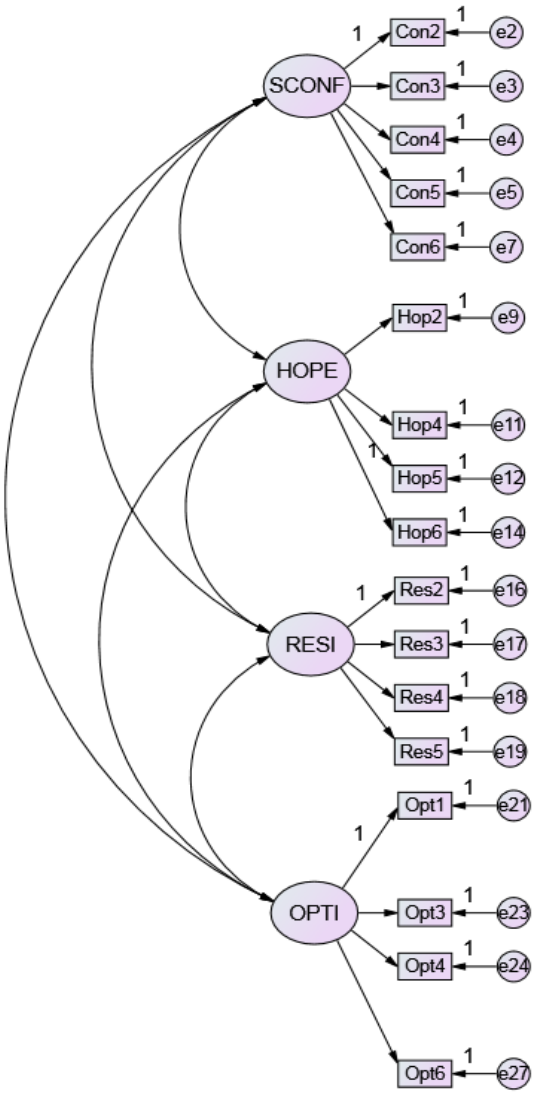

Figure 21: Model-PCC (Components of PsyCap)

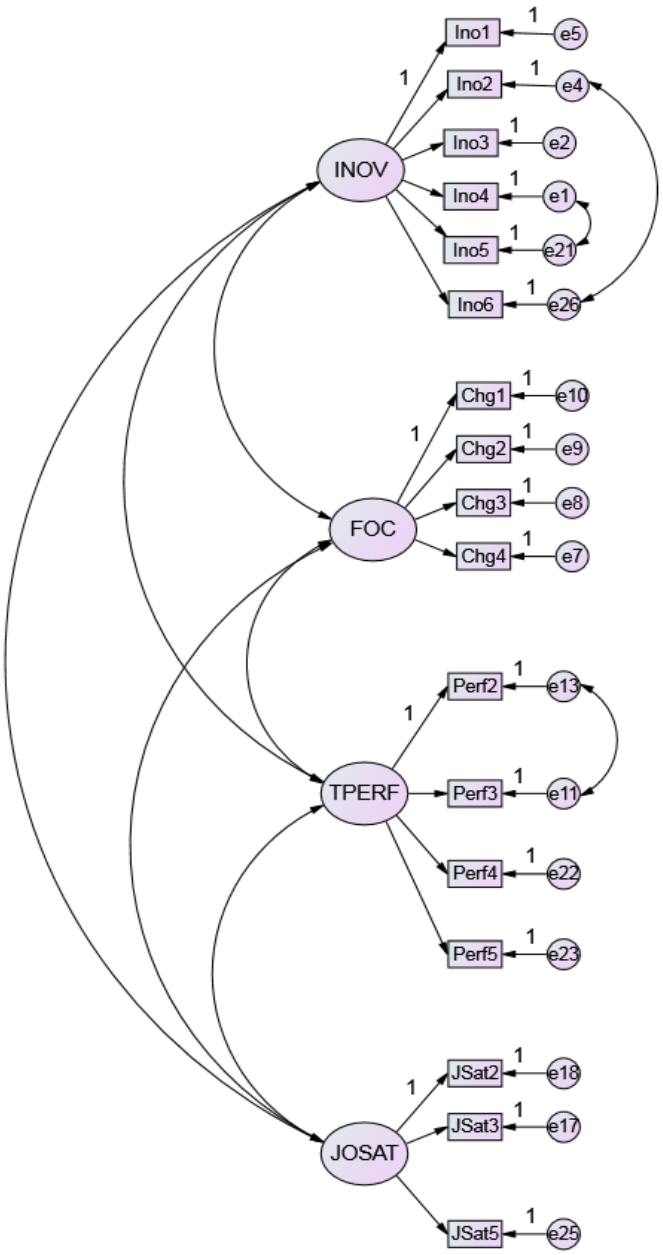

Figure 22: Model D (Dependents)

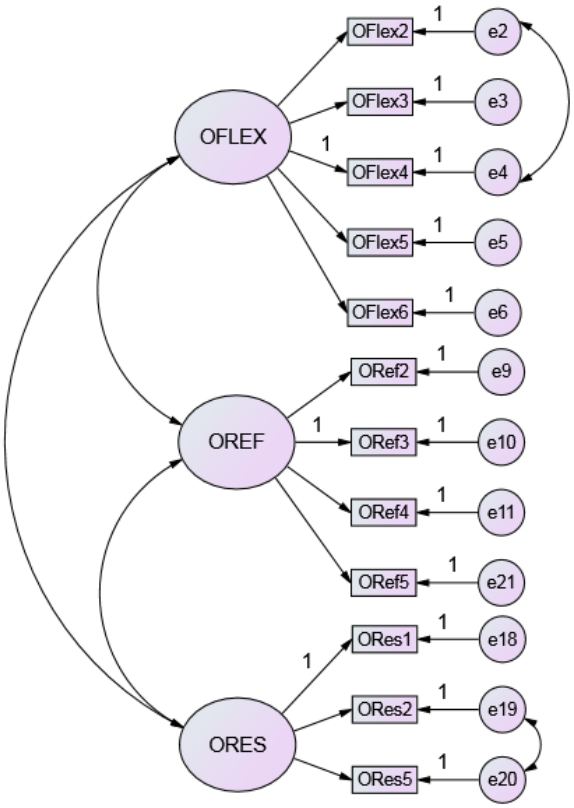

Figure 23: Model-COCD (Organisational Context)

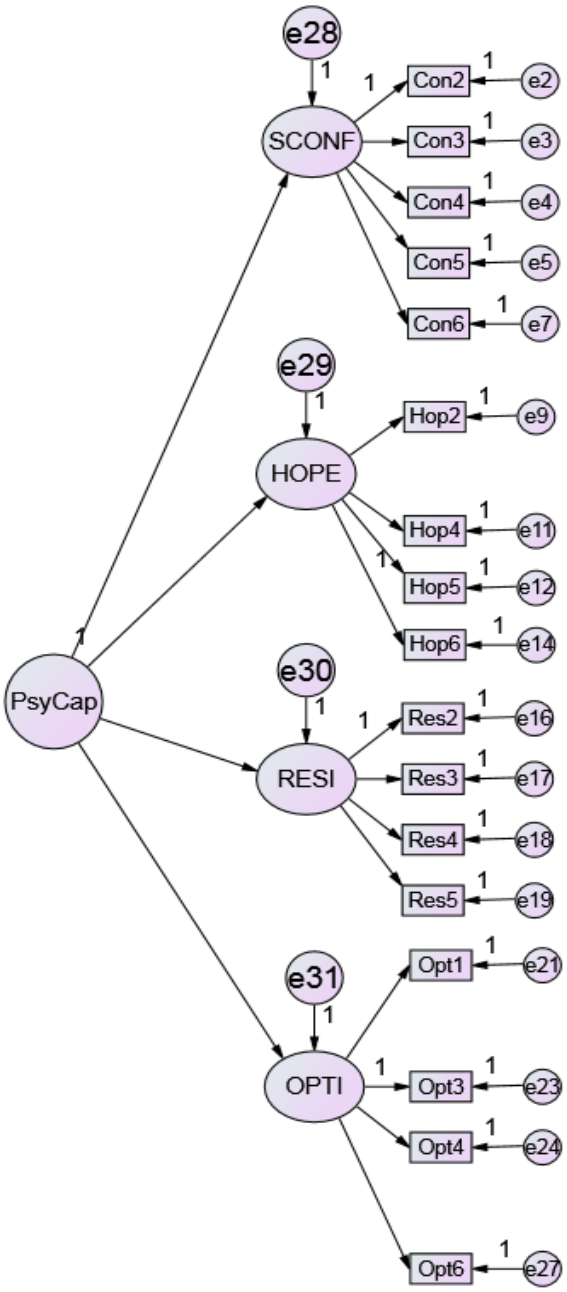

Figure 24: Model PsyCap

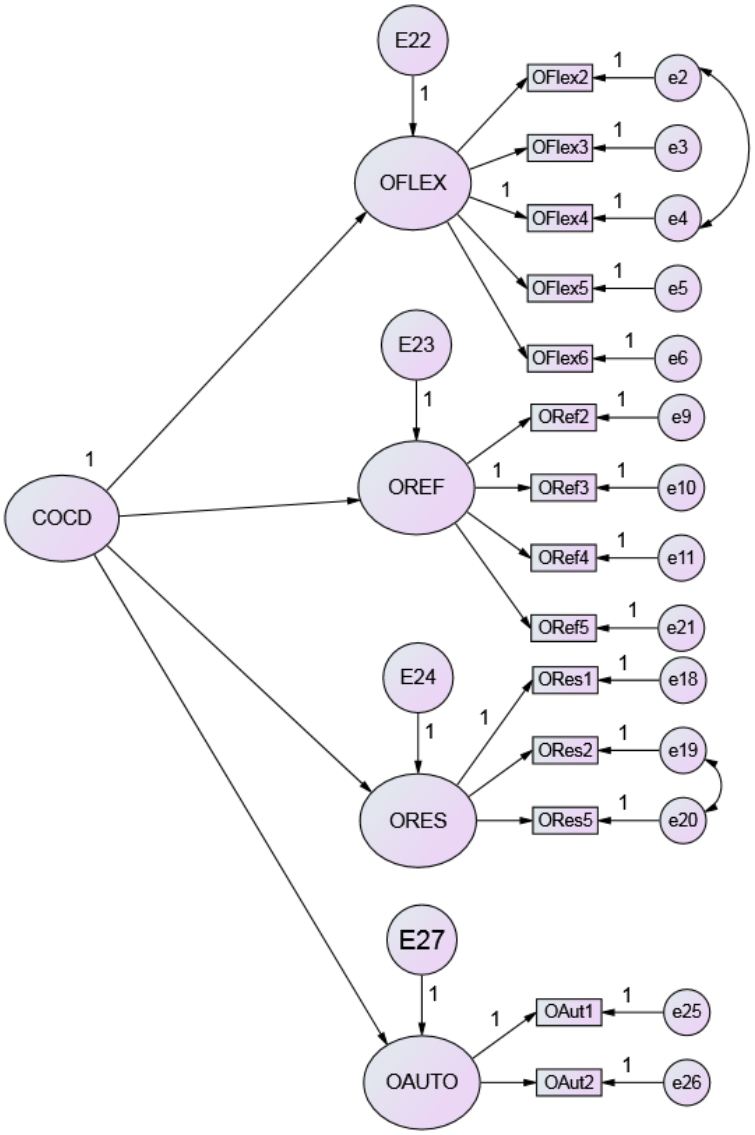

Figure 25: Model COCD (2nd Order)

Appendix (III) Questionnaire

An investigation in the dynamics of internal conversation, psychological capital and organisational behaviour

Introduction

My study attempts to investigate the interaction between individuals and their work environment. More precisely it seeks to understand the relationship (if any) between specific organisational experiences and the decision making processes of individuals in their workplace and whether these interactions affect how they conduct themselves at work. The questionnaire is divided into three parts, Part 1 concerns cognitive and psychological attributes and work outcomes whereas Part 2 focuses on organisational attributes. The last part of the questionnaire constitutes some general questions about your, such as age, gender, etc. If you would like to receive a feedback on the study findings you can leave your contact details at the end of the survey, but note you are not obliged to complete any of the questions or parts thereof if you do not wish to do so. The administration of this questionnaire is carried out under strict ethical guidelines, anonymity and confidentiality are central to these guidelines. By participating in this research you are agreeing that the information collected may be used in academic studies and/or potential publication. Please note that we will treat your information with the utmost confidentiality you will not be identified in any published material. We wish to thank you for your participation.

Click Next (or >>) to start the questionnaire

Part 1 How long have you been employed in your current position?

- ❍ 6 months or more
- ❍ less than 6 months

Part 1 (a)

1.1 Some of us are aware that we are having a conversation with ourselves, silently in our heads. We might just call this 'thinking things over'. Is this the case for you?

- ❍ Yes
- ❍ No

1.1(a) ON THE WHOLE (please select the most appropriate rating for each statement 1 being strongly disagree and 7 strongly agree)

	1	2	3	4	5	6	7
1. I do daydream about winning the lottery.	❍	❍	❍	❍	❍	❍	❍
2. I think about work a great deal, even when I am away from it.	❍	❍	❍	❍	❍	❍	❍
3. I dwell long and hard on moral questions.	❍	❍	❍	❍	❍	❍	❍
4. I blot difficulties out of my mind, rather than trying to think them through.	❍	❍	❍	❍	❍	❍	❍
5. My only reason for wanting to work is to be able to pay for the things that matter to me.	❍	❍	❍	❍	❍	❍	❍
6. Being decisive does not come easily to me.	❍	❍	❍	❍	❍	❍	❍
7. I try to live up to an ideal, even if it costs me a lot to do so.	❍	❍	❍	❍	❍	❍	❍
8. When I consider my problems, I just get overwhelmed by emotions.	❍	❍	❍	❍	❍	❍	❍
9. So long as I know those I care about are OK, nothing else really matters to me at all.	❍	❍	❍	❍	❍	❍	❍
10. I just hesitate, because nothing I do can really make a difference to how things turn out.	❍	❍	❍	❍	❍	❍	❍
11. I'm dissatisfied with myself and my way of life - both could be better than they are.	❍	❍	❍	❍	❍	❍	❍
12. I know that I should play an active role in reducing social injustice.	❍	❍	❍	❍	❍	❍	❍
13. I feel helpless and powerless to deal with my problems, however hard I try to sort them out.	❍	❍	❍	❍	❍	❍	❍

Part 1 (b) - Psychological States

On the next few pages are statements that describe how you may think about yourself right now in relation to your work.

1.2 To what extent do you agree with the following statements about your own self-confidence in your work context?

	1	2	3	4	5	6	7
SE1: I feel confident in analysing a long-term problem to find a solution.	❍	❍	❍	❍	❍	❍	❍
SE2: I feel confident in representing my work area in meetings with management.	❍	❍	❍	❍	❍	❍	❍
SE3: I feel confident contributing to discussion about the organisation's strategy.	❍	❍	❍	❍	❍	❍	❍
SE4: I feel confident helping to set targets/goals in my work area.	❍	❍	❍	❍	❍	❍	❍
SE5: I feel confident contacting people outside the organisation (e.g., suppliers, customers) to discuss problems.	❍	❍	❍	❍	❍	❍	❍
SE6: I feel confident presenting information to a group of colleagues.	❍	❍	❍	❍	❍	❍	❍

1.3 Based on the following statements to what extent do you agree that you are generally a hopeful person when it comes to your work? Please select the most relevant rating for each statement (**1 being strongly disagree and 7 strongly agree**).

	1	2e	3	4	5	6	7
HP1: If I should find myself in a jam at work, I could think of many ways to get out of it.	❍	❍	❍	❍	❍	❍	❍
HP2: At the present time, I am energetically pursuing my work goals.	❍	❍	❍	❍	❍	❍	❍
HP3: There are lots of ways around any problem.	❍	❍	❍	❍	❍	❍	❍
HP4: Right now I see myself as being pretty successful at work.	❍	❍	❍	❍	❍	❍	❍
HP5: I can think of many ways to reach my work goals.	❍	❍	❍	❍	❍	❍	❍
HP6: At this time I am meeting the work goals I have set for myself.	❍	❍	❍	❍	❍	❍	❍

1.4 How would you rate your resiliency as it relates to your work? Please select the most relevant rating for each statement **(1 being strongly disagree and 7 strongly agree).**

	1	2	3	4	5	6	7
RES1: When I have a setback at work, I have trouble recovering from it, moving on.	❍	❍	❍	❍	❍	❍	❍
RES2: I usually manage difficulties one way or another.	❍	❍	❍	❍	❍	❍	❍
RES3: I usually take stressful things at work in stride.	❍	❍	❍	❍	❍	❍	❍
RES4: I can get through difficult times at work because I've experienced difficulty before.	❍	❍	❍	❍	❍	❍	❍
RES5: I feel I can handle many things at a time at this job.	❍	❍	❍	❍	❍	❍	❍

1.5 Based on the following statements please evaluate the extent you think you are optimistic as it pertains your work: (1 being strongly disagree and 7 strongly agree)

	1	2	3	4	5	6	7
OP1: When things are uncertain for me at work, I usually expect the best.	❍	❍	❍	❍	❍	❍	❍
OP2: If something can go wrong for me work-wise, it will.	❍	❍	❍	❍	❍	❍	❍
OP3: I always look on the bright side of things regarding my work.	❍	❍	❍	❍	❍	❍	❍
OP4: I'm optimistic about what will happen to me in the future as it pertains to work.	❍	❍	❍	❍	❍	❍	❍
OP5: In this job, things never work out the way I want them to.	❍	❍	❍	❍	❍	❍	❍
OP6: I approach this job as if "every cloud has a silver lining."	❍	❍	❍	❍	❍	❍	❍

Part 1 (c) - Behaviour, Attitude and Performance

1.6 Please provide an overall rating on the extent to which you: (**1 being strongly disagree and 7 strongly agree**)

	1	2	3	4	5	6	7
IB1: Search out new technologies, processes, techniques, and/or product ideas.	❍	❍	❍	❍	❍	❍	❍
IB2: Generate creative ideas.	❍	❍	❍	❍	❍	❍	❍
IB3: Promote and champion ideas of others.	❍	❍	❍	❍	❍	❍	❍
IB4: Investigate and secure funds needed to implement new ideas.	❍	❍	❍	❍	❍	❍	❍
IB5: Develop adequate plans and schedules for the implementation of new ideas.	❍	❍	❍	❍	❍	❍	❍
IB6: Are innovative.	❍	❍	❍	❍	❍	❍	❍

1.7. How would you describe your attitude towards change at work? Please rate the following statements: **(1 being strongly disagree and 7 strongly agree)**

	1	2	3	4	5	6	7
F1. I am fearful of change.	❍	❍	❍	❍	❍	❍	❍
F2. I worry about changes taking place at work.	❍	❍	❍	❍	❍	❍	❍
F3. I feel anxious when I hear about impending changes at work.	❍	❍	❍	❍	❍	❍	❍
F4. I get nervous when I have to change the way I do things at work.	❍	❍	❍	❍	❍	❍	❍
F5. I am sceptical of change when it comes to my work.	❍	❍	❍	❍	❍	❍	❍

1.8. How do you view your present job? Please rate the following statements ranging from 1 (terrible) to 7 (delighted)

	1	2	3	4	5	6	7
JB1: How do you feel about your job?	❍	❍	❍	❍	❍	❍	❍
JB2: How do you feel about the people you work with - your co-workers?	❍	❍	❍	❍	❍	❍	❍
JB3: How do you feel about the work you do on your job - the work itself?	❍	❍	❍	❍	❍	❍	❍
JB4: What is it like where you work - the physical surrounding, the hours, the amount of work you are asked to do?	❍	❍	❍	❍	❍	❍	❍
JB5: How do you feel about what you have available for doing your job - I mean equipment, information, good supervision, and so on?	❍	❍	❍	❍	❍	❍	❍

1.9. The following questions relate to how you carried out your work in the past 3 months. Please answer as carefully and honestly as possible (1 being strongly disagree and 7 strongly agree). If you are uncertain about how to answer a particular question, please give the best possible answer**.**
In the past 3 months...

	1	2	3	4	5	6	7
TP1: I was able to plan my work so that I finish it on time. (1)	❍	❍	❍	❍	❍	❍	❍
TP2: I kept in mind the work result I needed to achieve.	❍	❍	❍	❍	❍	❍	❍
TP3: I was able to set priorities.	❍	❍	❍	❍	❍	❍	❍
TP4: I was able to carry out my work efficiently.	❍	❍	❍	❍	❍	❍	❍
TP5: I managed my time well.	❍	❍	❍	❍	❍	❍	❍

1.10. On a scale ranging from 1 to 10 how would you rate your work-related performance (e.g. productivity etc.) relative to people you know in similar positions within your organisation in the past 3 months? Please select the most appropriate rating:

- ❍ 1
- ❍ 2
- ❍ 3
- ❍ 4
- ❍ 5
- ❍ 6
- ❍ 7
- ❍ 8
- ❍ 9
- ❍ 10

Part 2 - Organisational Attributes

In this part of the questionnaire the focus is on your experience of your work environment in the organisation you are currently employed.

2.1 Please kindly rate the following statements based on the extent you agree or disagree with them: **(1 being strongly disagree and 7 strongly agree)**

	1	2	3	4	5	6	7
IF1: New ideas are readily accepted in our organisation.	❍	❍	❍	❍	❍	❍	❍
IF2: Our organisation is quick to respond when changes need to be made.	❍	❍	❍	❍	❍	❍	❍
IF3: Management here are quick to spot the need to do things differently.	❍	❍	❍	❍	❍	❍	❍
IF4: Our organisation is very flexible; it can quickly change procedures to meet new conditions and solve new problems as they arise.	❍	❍	❍	❍	❍	❍	❍
IF5: Assistance in developing new ideas is readily available in our organisation.	❍	❍	❍	❍	❍	❍	❍
IF6: People in our organisation are always searching for new ways of looking at problems.	❍	❍	❍	❍	❍	❍	❍

2.2 Based on the following statements please assess how much time is spent reviewing on-going organisational processes in your organisation: (1 being strongly disagree and 7 strongly agree)

	1	2	3	4	5	6	7
REF1: In our organisation, the way people work together is readily changed in order to improve performance.	❍	❍	❍	❍	❍	❍	❍
REF2: The methods used in our organisation to get the job done are often discussed.	❍	❍	❍	❍	❍	❍	❍
REF3: There are regular discussions as to whether people in the organisation are working effectively together.	❍	❍	❍	❍	❍	❍	❍
REF4: In our organisation, objectives are modified in light of changing circumstances.	❍	❍	❍	❍	❍	❍	❍
REF5: In our organisation, time is taken to review organisational objectives.	❍	❍	❍	❍	❍	❍	❍

2.3 How much control are employees afforded in discharging their work responsibilities in your organisation? Please rate the following statements: **(1 being strongly disagree and 7 strongly agree)**

	1	2	3	4	5	6	7
AUT1: Management let people make their own decisions much of the time.	❍	❍	❍	❍	❍	❍	❍
AUT2: Management trust people to take work-related decisions without getting permission first.	❍	❍	❍	❍	❍	❍	❍
AUT3: People at the top tightly control the work of those below.	❍	❍	❍	❍	❍	❍	❍
AUT4: Management keep too tight a reign on the way things are done around here.	❍	❍	❍	❍	❍	❍	❍
AUT5: It's important to check things first with the boss before taking a decision.	❍	❍	❍	❍	❍	❍	❍

2.4 Based on the following statements please indicate the extent to which you think your organisation commits resources to support creative initiatives: (1 being strongly disagree and 7 strongly agree)

	1	2	3	4	5	6	7
RS1: There are adequate resources devoted to innovation in our organisation.	❍	❍	❍	❍	❍	❍	❍
RS2: There is adequate time available to pursue creative ideas here.	❍	❍	❍	❍	❍	❍	❍
RS3: Lack of funding to investigate creative ideas is a problem in our organisation.	❍	❍	❍	❍	❍	❍	❍
RS4: Personnel shortages inhibit innovation in our organisation.	❍	❍	❍	❍	❍	❍	❍
RS5: Our organisation gives people free time to pursue creative ideas during the workday.	❍	❍	❍	❍	❍	❍	❍

Part 3 - General Information

3.1 In general, what are the most important areas of your life now - those that you care about deeply? (Please choose from the following areas, 7 being the most important and 1 the least).

	1	2	3	4	5	6	7
A. Work/career	❍	❍	❍	❍	❍	❍	❍
B. Performative achievements (e.g. sports, music, etc.)	❍	❍	❍	❍	❍	❍	❍
C. Financial Success	❍	❍	❍	❍	❍	❍	❍
D. Interpersonal relationships with family and friends.	❍	❍	❍	❍	❍	❍	❍
C. Pro-social activities such as caring for others, campaigning for good causes, etc.	❍	❍	❍	❍	❍	❍	❍
D. Spirituality	❍	❍	❍	❍	❍	❍	❍
E. Resolving problems	❍	❍	❍	❍	❍	❍	❍
F. Establishing a better way of life	❍	❍	❍	❍	❍	❍	❍
G. Overcoming present difficulties	❍	❍	❍	❍	❍	❍	❍

You are almost there, the next few questions are just to help us know a little more about you and your work. If you do not wish to answer any of the questions please enter N/A or leave them unanswered.

3.2. (a) What is your current occupation?_____

3.2. (b) How would you best describe your level of responsibility?

- ❍ a. Top management team
- ❍ b. Middle manager
- ❍ c. Line manager
- ❍ d. Supervisor
- ❍ e. Line staff
- ❍ f. Other; please specify _____

3.2 (c) What is the name of the organisation you currently work for?

3.2. (d) In which industry/sector does your organisation operate/compete in?

3.3. How long have you been employed in this position in your current organisation?

3.4. How long have you been employed in your current organisation?

3.5. What is your highest level of education?

- ❍ a. Degree level (e.g. BSc)
- ❍ b. Postgraduate (e.g. Masters)
- ❍ c. Doctorate
- ❍ d. Other; please specify _____

3.6. Roughly, how many people are employed in your organisation? (Please provide an approximate figure if real value not known)

3.7. Kindly provide the following general information about yourself:

a. Nationality
b. Country you are based in
c. Gender
d. Age

You may wish to leave your contact details if you would like to be informed of the outcome of this study in particular as it relates to your own cognitive (and psychological) attributes and behavioural and attitudinal outcomes.

Name: _____

Email: _____

Please feel free to use the space to provide any additional comments you think might be useful for this study.

Thank you for taking time out to complete this survey.